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ABSTRACT

This guide offers suggestions for preparing notebooks for board members of a state-based career information system and contains a sample notebook. (A personal notebook has three main goals: introduces a new board member to the state system and explains the role of a board member, organizes essential materials that will be received and used by a board member, and is a reference for the board member when discussing the system with others.) The nine-page part 1, Suggestions for Preparing Notebooks for Board Members of a State-Based Career Information System, discusses activities of policy-making boards. It gives guidelines for establishing and initiating activities of the boards. Some procedural examples are given related to orientation of new board members. Major categories or material useful in a board notebook are summarized. Part 2, A Sample Board Notebook, contains a model with sample contents/materials for three types: (1) full general-purpose documents suitable for reproduction, (2) suggestions and samples of materials that could be developed for the particular state, and (3) references to additional material that can be ordered. These categories are included: board role and membership, agendas and minutes, committee reports and correspondence, constitution and policies, fiscal aspects, organizational information, and sample materials. (YLB)

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ED201770

BOARD NOTEBOOK

A Guide to Compiling Information for Boards of Systems for Career Information

Jody Arnold
and
Bruce McKinlay

1980

Career Information System

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CE 028 710

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NATIONAL INSTITUTE OF EDUCATION

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Bruce McKinlay

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

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HOW TO USE THIS GUIDE

From the very beginning and through two federal granting programs, the idea of a user-oriented policy board has been part of state-based systems for career information.

Establishment of a formal consortium rather than simply an advisory committee has several advantages: it represents, in a significant policy-making way, the expertise and interests of the diverse interests; it requires a more substantial commitment from members; it prevents domination of the CIS by any one agency; it helps keep the staff responsible to the needs of its clientele.

Developing a Career Information System,
Oregon Career Information System, 1974

To assure the development and efficient dissemination of high quality career information to people making career choices, an appropriate organizational structure must be developed.

Whatever structure is selected, to be successful it must include participation of key institutions representing both the users and producers of occupational and related career data--namely, schools and educational agencies, employment and training agencies, and business and industry. These institutions would form a consortium, or develop some other cooperative arrangement to establish and maintain the career information system. The organization should have a policymaking board of directors and a professional staff to execute its policies.

Career Information Systems: Standards for Organization and Development,
United States Department of Labor, 1977

*Interagency and intergroup cooperation is to be fostered in all aspects of the CIDS [*Career Information Delivery System*]. This will require development of working agreements for policy direction so various groups of producers and users of career information are represented.*

Career Information Delivery Systems: A Position Paper on Organization and Delivery, National Occupational Information Coordinating Committee, 1979

The success of the career information consortium, involving shared financial support and policy-making by information users and providers, depends upon knowledgeable and committed Board members. A Board notebook can help Board members understand and carry out their responsibilities. The Board member's personal notebook has three main goals:

1. To introduce the new Board member to the state system and the role of a Board member

2. To organize the essential materials that will be received and used by a Board member

3. To be a reference for the Board member when discussing the career information system with others

This Guide has two parts:

Part I, "Suggestions for Preparing Notebooks for Board Members of a State-Based Career Information System" first discusses activities of policy-making Boards in systems for career information. It gives guidelines for establishing and initiating activities of the Board. Some procedural examples are given related to orientation of new Board members.

Part II, "A Sample Board Notebook," describes and discusses the contents of a notebook for individual Board members of a state system.

The sample notebook contained in Part II is a model to be used by the person or committee responsible for coordinating the policy-making Board's activities. It suggests categories of material that are useful to Board members. These materials are of three types:

1. Full, general-purpose documents that can be reproduced and incorporated directly into notebooks for a system's Board members

2. Suggestions and samples of material that could be developed for the particular state

3. References to additional material that can be ordered and inserted in Board members' notebooks

In providing categories and samples, the purpose is not to prescribe the best way to organize a Board notebook. The role of Boards varies widely among state systems for career information, depending on the organizational structure, political atmosphere, and personal orientations of those involved with the system; no one set of materials or specific procedures will apply to all Boards.

Because of this, categories and samples are provided to show one way of assisting Board members to be effective in their role, thus providing a model which can be pared down, supplemented, or reworked to develop the notebook most appropriate to each state's situation.

☐1 Suggestions for Preparing Notebooks for Board Members of a State-Based Career Information System

ACTIVITIES OF THE BOARD

In a cooperative venture such as a career information system, there are many policy decisions that must be made, sometimes influencing the very survival of the system. Whether the system's Board sets policy for a non-profit corporation or provides advice to an established administrative agency, its activities are important in making these policy decisions. Therefore, an informed and involved group of Board members is an integral part of a successful career information system.

A brief review of the composition and activities of the Board will provide a foundation for considering the organization and content of the Board members' notebooks.

A Steering Committee Guide for Planning a State-Based Career Information System[1] reviews the primary steps in implementing a system for career information. The excerpt presented below discusses the membership of a policy-making board.

BOARD MEMBERSHIP

Membership on the Board may be by election of the consortium membership or by formal invitation of the Board. Membership should be structured to insure a certain diversity of representation from secondary and higher education, social service agencies, management, labor, and other groups. Having users on the Board insures credibility of the Board by user agencies.

---

[1]Wendy M. Arnold (Eugene, Oregon: Career Information System, 1978).

Collectively the backgrounds of the individuals forming the directorate of the career information system should represent knowledge and experience in the following areas:

- *Collection and analysis of career, educational and labor market information*
- *Information dissemination techniques*
- *Direct use of career information with students and clients*
- *Career guidance*
- *Curriculum development*
- *Knowledge of the economic and occupational structure of the state*
- *Administrative skill and knowledge of the political structure in the state*

There is some disagreement about the appropriate "organizational level" for Board members from state agencies. Oregon, California and several other systems, that started at the initiative of user agencies and by the efforts of individuals who were personally or professionally committed to the idea of improving career decisions, have emphasized personal qualities of Board members. They have looked for commitment, leadership and expertise. The Oregon planning group decided early to give highest priority to obtaining people for Board membership who demonstrated ability and commitment to the goals of the Career Information System rather than seeking people at high organizational levels who might have authority but would also have competing commitments. They obtained commitment from these persons, but have sometimes gotten individuals who lacked influence with and the support of their state agency.

Getting "top level" representatives from the state agencies looked like a solution to the Labor Department task force that set up the Division of Career Information Services (DCIS) States Grants Program, so they required the state's chief education officer and the director of the state employment security agency to serve, either personally or through a designee, on the Board. In almost every case a designee has been named. Sometimes it is someone with organizational responsibility

in the area, such as a vocational or career education director or a director of guidance; in other cases it has been a general administrative assistant. Some designees seem to have had substantial influence within their agency; for other designees the career information system has seemingly become just another of the "joint" programs over which agencies engage in competition for turf.

In considering Board membership, you will want committed, effective, and influential persons representing the following agencies:

- *State Employment Security Agency*
- *Department of Education*
- *State CETA Planning Council*
- *State Occupational Information Coordinating Committee*
- *Post-Secondary Education*

In addition, you will want representatives of direct users of the information, such as secondary schools, community colleges, local employment offices, libraries, social agencies, etc. The career information system may also find it desirable to include representatives from business and industry and client groups such as students, manpower trainees, etc.

Remember--the most effective Board members are those who care most about service to people.[2]

BOARD DECISIONS

Regardless of authority structure and membership, the decisions that a Board must contribute to and the support function it needs to provide are numerous. The most common are listed on the following page.

---

[2]Ibid., pp. B - 3-5.

Typical Board Functions and Decisions

During Initial Implementation Phase

* Select the Staff Director
* Choose the institution to be the administrative agency
* Decide which computerized delivery system will be used
* Implement a plan for long-range finance
* Elicit support in practice from major state agencies
* Ensure business-like administration of the program
* Assist in marketing
* Lend credibility to the new service until it can get established

Once Operational

* Sustain the user orientation of the system
* Set fees and annual operating budgets
* Evaluate the Staff Director
* Elect Board officers
* Establish policies and approve changes in system operation
* Appoint and hear reports of Board committees
* Set long-range goals

In making their various decisions and in providing leadership for a user-oriented system of career information, Board members rely on reference material of many kinds, including information on previous decisions and current activities; staff reports; names and addresses of other Board members; and financial reports. This Guide discusses and shows examples of these materials.

NEW BOARD MEMBER ORIENTATION

As new Board members are elected or appointed, some orientation is necessary to integrate them into their roles as Board members. A "New Member Orientation" can serve this purpose. The orientation session can precede a regular Board meeting or can be held at a separate time. The Board notebook can be a tool in this process, as the new members are introduced to information already contained in their notebooks.

Whatever the length of the session, there are several topics which need to be discussed:

* The history and purpose of the system for career information
* The purpose of the consortium and the Board
* An overview of the system's components, including a hands-on demonstration when possible
* An overview of the organizational structure and staff function

When time allows, it is very effective to follow the discussion of staff functions with presentations by staff members regarding their unit's activities. These presentations not only provide more specific examples of the mechanics of the system, but allow for interaction between staff and Board Members which can provide a good basis for future understanding.

The following two pages contain samples to aid in the orientation process. The "Welcome Letter" is a way to provide an official welcome to the new Board Member. A sample "Press Release" is also shown, which may be released by the system director or provided to the new member for release by the agency being represented.

WELCOME LETTER

Date

Name, Title
Organization Name
Address
City, State Zip

Dear *(name)*:

Welcome to the Career Information System Board! I am pleased we will have your experience as a *(person's occupation or field of expertise)* on the Board and I know we will benefit from your membership and contribution. The Board is a vital part of the cooperative venture of developing and operating the *(name of system)*, and I am looking forward to working with you in the next *(length of term)* years.

As a Board member you have two very important functions. First, in attending Board meetings you will be involved in reviewing current activities of *(name or initials of state system)*; setting priorities regarding its operation, design, and innovations; and recommending appropriate action toward implementing those priorities to the staff. Second, you will apply your knowledge, experience, and observations to the *(initials of system)* objective of delivering meaningful career information to people who want and need it to make decisions about their futures. This function is accomplished both in Board discussion and sharing, and in promoting the acceptance and use of the system throughout our state.

Before the next Board meeting on *(date)*, we shall plan an orientation session for you and the other new members at our offices in *(city)*. We will be contacting you in the next month to find a good date.

Once again, I'm glad you have agreed to serve on the Board.

Sincerely,

Director (or Board Chair)

PRESS RELEASE

FOR IMMEDIATE RELEASE

(Contact Person
Phone Number)

(Name) of the *(organization or agency)* was recently elected to a *(length or type of term)* on the policy-making Board of the *(name of system for career information)*. As a Board member, *(name)* will participate in policy decisions concerning *(name or initials of state system)*'s current and future activities. *(He or she)* will also draw on *(his or her)* experience in *(person's field of expertise)* to discuss and promote the acceptance and effective use of the system in *(name of state)*.

The *(name of system)* is an interagency consortium dedicated to the development and delivery of meaningful career information to people who want and need it to make decisions about their futures. Because the Board is composed of representatives of both information producers and information users, *(person's name)* will be acting as a representative of *(agency or group of which person is a part)* on the Board. As such, *(he or she)* is interested in comments about or experiences with the *(name of system)* about which the Board should be aware.

(If appropriate, give address and telephone number of the new member.)

CONTENTS OF A BOARD NOTEBOOK: DESCRIPTION & DISCUSSION

This section describes the major categories of material that are useful in a Board notebook. Part II, which follows, provides sample contents of each category.

BOARD ROLE & MEMBERSHIP

* Provides a broad overview of the purpose of a system for career information *(What is a Career Information System?)*
* Provides orientation to the origins and direction of the system *(Initial Funding Proposal with Timeline and Scope of Work)*
* Provides a list of Board members to facilitate communication *(List of Board Members, Terms of Board Members)*

AGENDAS & MINUTES

* Explains the yearly calendar of meetings and the usual components of each meeting *(Board Meetings: Typical Yearly Calendar and Typical Agenda Items)*
* Contains agendas and minutes of meetings *(Agenda, Minutes)*

COMMITTEE REPORTS & CORRESPONDENCE

* Contains reports of Board Task Forces or committees *(Committee Report)*
* Contains annual or periodic reports regarding the system's activities *(Annual Report)*
* Contains correspondence relevant to the activities or interests of the Board

CONSTITUTION & POLICIES

* Contains policy documents related to the continuance of the system for career information *(Outline of Constitution; Constitution or By-Laws; Policy Statement: Standards for Use; Policy Statement: User Site Contract; Policy Statement [regarding other system activities])*

FISCAL

(The Board has the responsibility of assuring the long-run financial viability of the system. In this capacity, the Board typically approves each year's pricing schedule and operating budget and also oversees the direction of the system's finances.)

* Contains policy papers and reference materials to enable the Board to make financial policy decisions *(Pricing Schedule #1 and #2, Budget, Revenue Report, Reference for Financial Decisions, Long-Range Planning Aid)*

ORGANIZATIONAL INFORMATION

* Provides information on the career information system's structure, staffing, and activities *(Organization Chart, Career Information System Staff Functions, Staff Position Descriptions, Standards for Organizational Structure, Map of State Computer Network, Computer Delivery Systems)*

* Aids comprehension of "jargon" *(Glossary: Systems for Career Information)*

* Can contain information on special projects or special staff activities

SAMPLE MATERIALS

(Materials which are about the system or produced by the system are useful in two ways: 1) to inform Board members and 2) to provide examples which they can show others when discussing the system.)

* Contains samples of the system's information, user materials, brochures, newspaper articles, reprints of journal articles, and a bibliography (*Sample Computer Printout, Systems' Brochures, User's Handbooks, Computer-Based Systems for Career Information, Chicago Tribune article, "Systematic Delivery of Career Information," "Implementing Systems of Career Information: A Selected Bibliography"*)

☐2 A Sample Board Notebook

WHAT IS A CAREER INFORMATION SYSTEM?

A career information system provides occupational and educational information to individuals who are making career decisions. Acting as a link between the *producers* and the *consumers* of career-related information, a career information system analyzes and develops the technical labor market data and educational statistics available from a variety of sources into a system of understandable, current, and localized career information. It then supplies this system to institutions and agencies for use by their clients.

How Does a Career Information System Work?

The career information system product--information--is stored in computer banks and continuously updated by full-time information analysts. All of that information may be accessed at a user site by one of two delivery systems: a computer terminal, linked by telephone to a computer running the career information system program; or a manual system backed by printouts of the system's information files in book form.

With either delivery system, the user can begin by indicating her or his interests, aptitudes and personal preferences. Responses to these questions are coded to match the attributes of the occupations on file and, when entered (via terminal or manually), they yield the titles of local occupations which may warrant serious study.

The user may then obtain a description of any of the occupations which make up most of the current employment in the state. This occupational information leads the user next to information about educational programs and institutions offering those programs.

Whom Does a Career Information System Serve?

The need for accurate and understandable information about the world of work transcends sex, race, and age. Career Information System users range from housewives re-entering the labor force to high school students planning their post-secondary futures, from inmates in correctional institutions to elementary students just becoming aware of the world of work, and from clients of a vocational rehabilitation office to CETA clients. Anyone who can follow a simple set of instructions can operate the system and explore the relevant careers.

How is a Career Information System Organized?

The structure of a career information system includes four main components: (1) a policy making Board; (2) operations management; (3) information analysts; and (4) user services staff.

The *Board* is composed of representatives of the system's users and supporters, and functions as a policy-making body. A consortium organizational structure has the advantage of sharing system costs, preventing the system from being dominated by any one agency, and improving communications between the staff and the users.

The *Operations Management* coordinates activities, including research, training, trouble-shooting, data entry and update, materials production, communication with computing centers, and other aspects of effective and efficient function of the system.

Information Analysts research existing occupational and educational data sources, analyze the information provided by these and other sources, and compile all the information into a format which is relevant to the questions and needs of its users.

User Services staff members market the system, provide training to user institutions and agencies in the effective use of the system, assist them in the integration of career information into their service programs, and maintain effective communication with the system's users.

A statewide career information system is able to provide its users with current, localized career information at a remarkably low cost through consortium arrangements. This allows even small groups to enjoy the services of the system.

INITIAL FUNDING PROPOSAL

(WITH TIMELINE & SCOPE OF WORK)

This information will be most useful if the system is in its early developmental stages. If implementation is already underway, any description of long-range plans would be helpful.

PROPOSAL
TO
DIRECTOR
NATIONAL OCCUPATIONAL INFORMATION COORDINATING COMMITTEE
ENTITLED
GEORGIA'S CAREER INFORMATION DELIVERY SYSTEM (CIDS)
GRANT PROPOSAL FOR GEORGIA CAREER INFORMATION SYSTEM
SUBMITTED BY:
GEORGIA OCCUPATIONAL INFORMATION COORDINATING COMMITTEE
151 ELLIS STREET, N.E., SUITE 504
ATLANTA, GEORGIA 30303
(404) 656-3117
CLIFFORD L. GRANGER
EXECUTIVE DIRECTOR
SEPTEMBER 20, 1979

Sample from the Georgia Career Information System

LIST OF BOARD MEMBERS

SEPTEMBER 30, 1977 COCIS BOARD MEMBERS

Gary E. Angerhofer
Management Analyst II
Deaprtment of Social Services
1575 Sherman, Room 710
Denver, CO 80203
892-3126

Keith Asplin, Director
Academic Affairs
Colorado Commission on Higher Education
1550 Lincoln, Room 210
Denver, CO 80203
892-2723; 892-2115

Leahbeth Barnard
Director of Counseling
Arapahoe Community College
5900 S.Santa Fe Drive
Littleton, CO 80120
794-1550

Peter Burton, Consultant
2031 Bellaire
Denver, CO 80207
388-8159

Burton L. Carlson, Director
Division of Employment and Training
1210 Sherman Street
Denver, CO 80203
839-5833

Jean Fulco, Vice Principal
Career Enrichment Park
7300 Lowell Blvd.
Westminster, CO 80030
428-2600

Gerald Gerber, Director
Career Development and Counseling
University of Southern Colorado
Pueblo, CO 81005
549-2581

Ronald Kelton, Consultant
Colorado Department of Education
State Office Building
201 E. Colfax
Denver, CO 80203
892-2247

Lloyd Lawson, Assistant Director
Administrative Services Branch
State Board for Community Colleges
and Occupational Education
207 State Service Building
1525 Sherman
Denver, CO 80203
839-3071

Robert J. Miller, Director
Div. of Automated Data Processing
2002 S. Colorado Blvd.
Denver, CO 80222
759-1221

Ellen Mrachek, Board Member
State Board for Community Colleges
and Occupational Education
2270 Oswego
Denver, CO 80010
366-0575

Sample from the Colorado Career Information System

TERMS OF BOARD MEMBERS

Office of the Director
247 Hendricks Hall
University of Oregon
Eugene, Oregon 97403
(503) 686-3872

Oregon
Career Information System

TERMS OF CURRENT BOARD MEMBERS

MEMBER	FIRST ELECTED	RE-ELECTED	CURRENT TERM EXPIRES
Les Adkins	10/23/80		9/83
Jim Ellingson	10/18/79		9/82
Don Feller	10/23/80		9/83
Joan Knudtson	6/8/77	10/23/80	9/83
Tom Lynch	10/18/79		9/82
Edith Maddron	10/18/79		9/82
Linda Moore	1/24/80		9/83
Al Pfahl	10/18/79		9/82
Marv Rasmussen	7/21/76	10/18/79	9/82
Roy Seeborg	10/23/80		9/83
Lloyd Smith	10/18/79		9/82
Johnnie Stokes	10/23/80		9/83
Darrell Ward	5/12/77	10/23/80	9/83
Jim Ylvisaker	11/09/79		9/81

October 1980

Sample from the Oregon Career Information System

BOARD MEETINGS

Typical Yearly Calendar

FALL	Pricing Election of Members Election of Officers
WINTER	User site visit Discussion or report on current CIS activity or policy issue
SPRING	Final Operating Budget for the next fiscal year
SUMMER	Visit CIS offices and meet staff Meet with staff members for an update on unit activities Review User Services' plans for Fall training

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Typical Agenda Items

* Discussion of current major agenda item(s)

* Discussion of other Board business and correspondence

* Report from Director or other staff regarding current system activities

* Forum on current issues and developments in career education, with each Board member contributing from area of expertise

* Discussion of date, location, and key agenda item for next meeting

AGENDA

Office of the Director
247 Hendricks Hall
University of Oregon
Eugene, Oregon 97403
(503) 686-3073

Oregon
Career Information System

NOTICE OF REGULAR MEETING
CAREER INFORMATION SYSTEM BOARD

The Career Information System Board will convene for a regular meeting Thursday, October 23, 1980 from 10:00 a.m. to 3:00 p.m. The meeting will be held at The Loft Restaurant (top of Equitable Building, 530 Center Street NE, 364-7700) in Salem.

AGENDA

1. MINUTES
2. AGENDA CHANGES
3. BOARD CORRESPONDENCE
4. REPORT OF BOARD MEMBERSHIP COMMITTEE/
   ELECTION OF NEW MEMBERS/
   RE-ELECTION OF CURRENT MEMBERS
5. ELECTION OF OFFICERS
6. FISCAL YEAR 1982 PRICING SCHEDULE
7. EVALUATION OF NEW MEMBER ORIENTATION
8. NEXT MEETING

The Frank Zeran Forum will be held during lunch.

Please contact Jody if you will be unable to attend or have additional agenda items.

jka
10/9/80

Sample from the Oregon Career Information System

MINUTES

MINUTES - OHIO CAREER INFORMATION SYSTEM ADVISORY BOARD MEETING

December 29, 1976

The first regular meeting of the OCIS Advisory Board was held December 29, 1976, at 10:00 a.m., in Conference Room A, at Ohio Bureau of Employment Services, 145 South Front Street. The meeting was called to order by Albert G. Giles, Administrator OBES.

In attendance were:

Dr. Donald Healas, Cleveland Public Schools
Dan Brown, Ohio Department of Education
Gerald Greer, Ohio Board of Regents
John Augenstein for William Herbeine, Rehabilitation Services Commission
Don Cort for Jerry Hammett, Department of Administrative Services
Deborah Gorman, OCIS Acting Director

Not in attendance were:

Robert Sauer, United Brotherhood of Carpenters and Joiners of America
Nancy Loseksmp, Upper Arlington Board of Education

Mr. Giles, who served as temporary chairman, welcomed the members of the Advisory Board and explained the purpose of the Department of Labor grant for OCIS. He stated that Roger Woelfe, Deputy Administrator of OBES, would represent OBES on the Board. He introduced Don Heineman, Employment Service Director, OBES; William Sven Lindberg, Asst. to ES Director, OBES; and Deborah Gorman, Acting Director, OCIS, to the other Board members. He explained that Mrs. Gorman has served as Acting Director of the OCIS Program since the re-assignment of Paul Miller was made from the OCIS Program to the Counseling Section of OBES, effective December 17, 1976, at Mr. Miller's request.

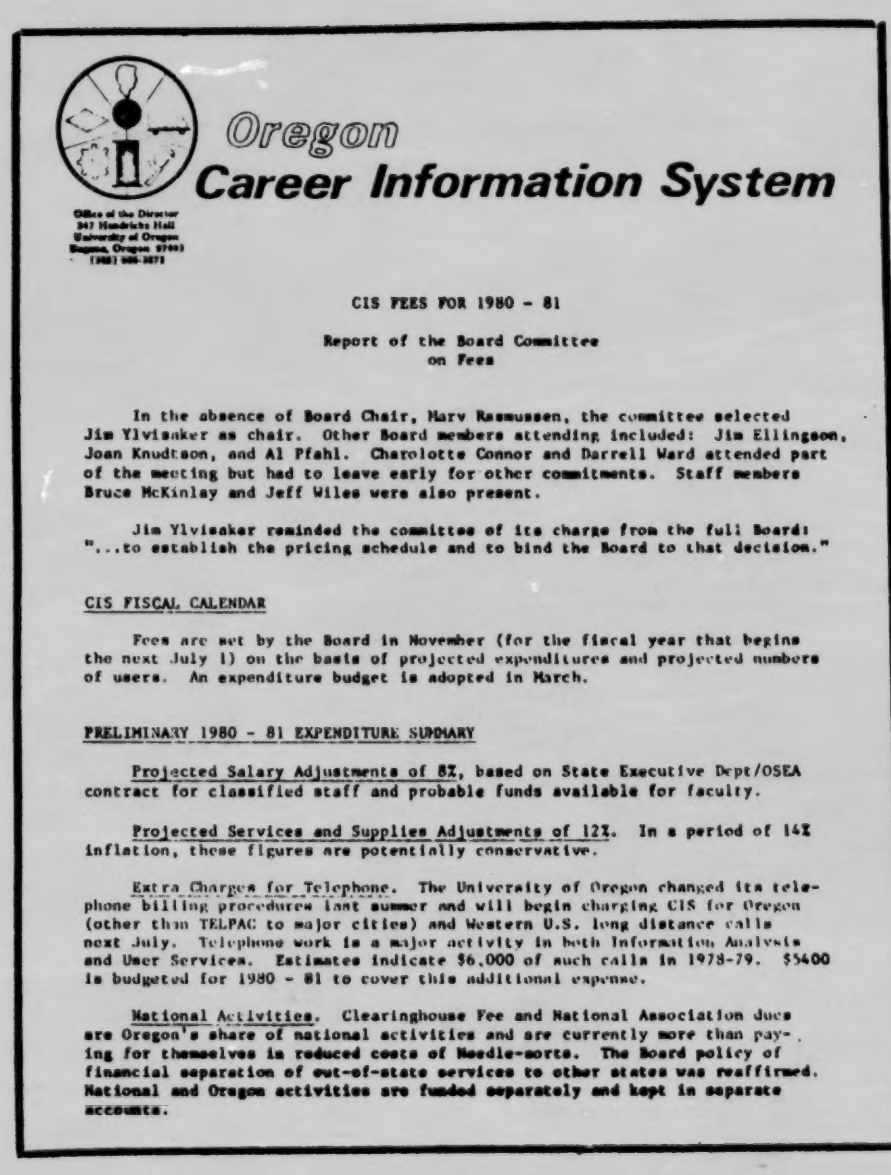
Mr. Heineman gave an overview of OCIS, covering the period of the transfer from the Department of Economic and Community Development to the Ohio Bureau of Employment Services, and discussing the problems both personnel and budgetary which the OCIS has experienced to date.

Mr. Lindberg explained that the Board would be governed by its own constitution, which includes policies for the nomination, election, and tenure of Board members. The Board would be free to establish its own committee structure. He explained that in keeping with the DOL grant, the Board will set policy within the limits of applicable statutes and regulations. Membership on the Board will be by formal invitation, and would be extended to any representatives from secondary and higher education, manpower and social services agencies, management, labor, and other persons designated by the Board as appropriate.

Discussions followed on the role of the Employment Information Series (produced by OBES) in regard to OCIS, a marketing plan, and the cost involved in the purchase of OCIS services by user agencies.

Sample from the Ohio Career Information System

COMMITTEE REPORT



Oregon
Career Information System

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Eugene, Oregon 97403
(503) 686-3671

CIS FEES FOR 1980 - 81

Report of the Board Committee
on Fees

In the absence of Board Chair, Marv Rasmussen, the committee selected Jim Ylvisaker as chair. Other Board members attending included: Jim Ellingson, Joan Knudtson, and Al Pfahl. Charolotte Connor and Darrell Ward attended part of the meeting but had to leave early for other commitments. Staff members Bruce McKinley and Jeff Wiles were also present.

Jim Ylvisaker reminded the committee of its charge from the full Board: "...to establish the pricing schedule and to bind the Board to that decision."

CIS FISCAL CALENDAR

Fees are set by the Board in November (for the fiscal year that begins the next July 1) on the basis of projected expenditures and projected numbers of users. An expenditure budget is adopted in March.

PRELIMINARY 1980 - 81 EXPENDITURE SUMMARY

Projected Salary Adjustments of 8%, based on State Executive Dept/OSEA contract for classified staff and probable funds available for faculty.

Projected Services and Supplies Adjustments of 12%. In a period of 14% inflation, these figures are potentially conservative.

Extra Charges for Telephone. The University of Oregon changed its telephone billing procedures last summer and will begin charging CIS for Oregon (other than TELPAC to major cities) and Western U.S. long distance calls next July. Telephone work is a major activity in both Information Analysis and User Services. Estimates indicate $6,000 of such calls in 1978-79. $5400 is budgeted for 1980 - 81 to cover this additional expense.

National Activities. Clearinghouse Fee and National Association dues are Oregon's share of national activities and are currently more than paying for themselves in reduced costs of Needle-sorts. The Board policy of financial separation of out-of-state services to other states was reaffirmed. National and Oregon activities are funded separately and kept in separate accounts.

Sample from the Oregon Career Information System

ANNUAL REPORT

1978 ANNUAL REPORT TO THE CONSORTIUM

670 AMERICAN CENTER BUILDING
150 EAST KELLOGG BOULEVARD
SAINT PAUL, MINNESOTA 55101

. . . continued

M.O.I.S. has a mission: not only to supply occupational and educational information to a broad range of Minnesotans, but also to stimulate local programs which support realistic career planning.

In 1972, U.S. business and industry spent 15 billion dollars for manpower training and reeducation of its employees. In recent years, high rates of unemployment have resulted in massive government spending. Yet, studies show that people are more successful in obtaining and keeping jobs if they had information about the world of work while they were preparing for and deciding about training and employment.

During this our third year of operation, the system was used at 240 sites, six times more than last year. More than 190,000 individuals had access to M.O.I.S. for current and accurate occupational and career planning information.

We believe M.O.I.S. is an important link between school and work. As we complete our second full year of operation we are pleased to report to our consortium and other friends our progress and problems during the past year.

The staff wishes to express its special thanks to the M.O.I.S. Board and task forces, educators and agency personnel, business and labor organizations, and the many individuals who have helped.

James R. Spansley
Executive Director

. . . continued

page three

M.O.I.S.

The Minnesota Occupational Information System - current, accurate, and locally relevant information. About careers, training, schools and more. So Minnesotans can make more informed occupational decisions and choose the education or training most relevant to their employment goals.

WHO USES IT?

Career changers and career seekers, teenagers and adults, researchers and counselors, students and teachers - anyone concerned with preparing for and choosing careers, or helping others to do so.

WHERE IS IT?

In secondary schools, community colleges, vocational technical institutes, private and public colleges and universities, CETA agencies, Vocational Rehabilitation offices, correctional institutions, and other social service agencies. This year M.O.I.S. served students and clients in 240 sites, widely dispersed throughout Minnesota.

WHAT IS IT?

A counseling and instructional resource - easy to use - available through computer or manual delivery. The system includes:

Occupational information - detailed and complete - on salaries, employment outlook duties, working conditions, and advancement opportunities - for over 350 Minnesota careers. That's 95% of the Minnesota labor force.

Preparation information - the training and education needed to prepare for a career.

Program information - a detailed description of educational and training programs available in Minnesota - everything from apprenticeships to liberal arts - and a list of schools offering the programs.

School information - area vocational technical institutes, community colleges, state universities, private colleges, medical schools, private vocational and professional schools, and teaching hospitals - over 200 Minnesota schools altogether - with detailed information like costs, admissions requirements, housing, and programs of study for each one.

QUEST* - a questionnaire which helps each user sort occupations by matching his or her interests, abilities, and work requirements with characteristics of occupations in the Minnesota labor market.

. . . *continued*

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HOW M.O.I.S. BEGAN

In 1975 the U.S. Department of Labor funded eight states, including Minnesota, to develop occupational information systems. Minnesota's grant, approximately $900,000, is to be distributed in decreasing portions over four years. The grant period ends in September, 1979.

On the state level, Governor Anderson established the Minnesota Occupational Information System through Executive Order 118/118A to perform under the terms of the federal grant. The Governor appointed a Board of Directors to represent both users and suppliers of occupational information. The Minnesota Higher Education Coordinating Board (HECB) was designated as fiscal and personnel agent. In 1977 Governor Perpich continued M.O.I.S. by Executive Order 147.

The Minnesota Educational Computing Consortium (MECC) agreed to provide computer delivery to M.O.I.S. clients. Over 70% of the state's school districts have MECC computer service. 90% of all elementary, secondary, and vocational school students have access to MECC service. MECC also provides marketing assistance and technical services to M.O.I.S. users.

In March 1976, staffing was completed and work begun. Information was gathered from Minnesota labor market statistics, the U.S. Department of Labor, and individuals in each occupation listed. Much of the file organization was modeled after Oregon's Career Information System, a similar program begun there in 1972.

Following pilot testing in the fall of 1976, M.O.I.S. offered computer delivery in January 1977. Forty schools and agencies implemented M.O.I.S. that spring.

THE CONSORTIUM

The Federal grant defines M.O.I.S. as a "consortium" uniting users and suppliers of occupational information. This concept implies cooperation in policy, operation and promotion, and eventually, in full support. For example, Minnesota agencies currently support the system by verifying the information presented about them. Validators represent commerce, industry, and labor. Nine Board members are from participating agencies. Seven others represent the served population. Additional representatives from education, business and labor participate in policy decisions through M.O.I.S. advisory committees and task forces.

. . . *continued*

THE YEAR'S ACHIEVEMENTS

During the second year of operation, M.O.I.S. research provided significant improvements to the system's content. New occupations were added, and the resulting 351 occupations were reviewed and evaluated by employers, educators and practitioners throughout the state. This validation process not only insures the accuracy of the information, but also provides valuable data about the nature and dimensions of occupations as they are practiced in Minnesota.

Education and training program descriptions are now offered for each school or institution offering the program. Information was developed and maintained for 208 schools. For the first time information is available on private colleges and professional schools, proprietary vocational schools and teaching hospitals.

The staff began development of three new topics for fall, 1978. These include a job seeking skills files, apprenticeship information on selected apprenticeable trades in Minnesota, and a "People's" file of interviews which reflect individuals' perceptions about their work.

In the marketing services area, materials were revised: posters, newsletters, transparencies and a sound/slide presentation were developed and distributed to user sites. M.O.I.S. and MECC staff provided inservice training and support service to all user agencies and institutions.

M.O.I.S. staff carried the M.O.I.S. message to a wide variety of professional educational and guidance conventions and workshops, including two national conventions.

M.O.I.S. helped organize the Association of Computer-Based Systems for Career Information. The newly formed national organization will provide a cooperative base for joint development, training and technical assistance projects. James R. Spensley, M.O.I.S.' Executive Director, was elected the first president of the Association.

The Board began a serious review of alternative computer systems for delivery. By year's end, the Board had decided to broker computer ports and to seriously pursue alternative computer resources.

FINANCING

The M.O.I.S. Board of Directors determined that the most equitable way to distribute the costs of the system is in proportion to the number of users served. Hence agencies are charged fees on the basis of the cost of materials and training plus a *per capita* fee to support continued information development, system enhancements and update. User sites also pay MECC for new or additional computer resources.

The 1977-78 pricing policy allowed joint purchase contracts among "associations" of users. A number of associations responded: regional ECSUs, existing computer consortiums, and others. These cooperative arrangements reduced direct training and administrative expenses and the resultant savings were passed on to consumers.

Fee income generated in fiscal 1978 totaled $52,451.00. Although the number of sites using M.O.I.S. in fiscal 1978 was 240, a 600% increase over the previous year, fee income per site was less than projected. Conversion of computer systems at MECC caused a delay in usage at many sites with a subsequent loss of income. A contract for 32 CETA youth centers originally planned to begin in April did not begin until June 15. Some of the income from this contract will consequently shift to fiscal year 1979.

In April, Governor Perpich asked for recommendations concerning the operation and financing of M.O.I.S. when the Federal grant ends on September 30, 1979. The Board of Directors unanimously concluded that services should be continued. User fees could support about 45% of FY 79 system expenses based on current usage. Increased support might take the form of appropriations, grants or contracts, higher fees, or increased usage at the same rates.

The final recommendations will become part of a report to the Governor in conjunction with budget requests for the next biennium.

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page six

EVALUATION

M.O.I.S. has ben evaluated in several ways. In general, M.O.I.S. has been found to be a valid and convenient source of occupational and educational information. The information has met high standards for relevancy, accuracy, lack of bias, currency and ease of use.

The system provided excellent support for counseling and guidance programs for secondary and post-secondary students, CETA clients, and persons in correctional institutions.

The computer delivery system has been criticized because of cost, frequent changes, competition for service and unreliability. These criticisms affect both delivery and marketing of M.O.I.S. The manual delivery system has been criticized because the information provided is only a part of the information contained in the computer delivery system.

NEXT YEAR

In fiscal year 1979 M.O.I.S. plans to broaden the information available to its users. The "People's" file, the job seeking skills file, and apprenticeship information will enhance current occupational information.

Marketing efforts will be directed toward expanding the user base to include private schools, colleges, social institutions, businesses, libraries, and private employment and rehabilitation agencies. M.O.I.S. will continue to provide necessary training and support to its user sites. User handbooks, staff manuals, audio-visual resources, newsletters and counseling and instructional applications will be furnished throughout the year.

A goal of 400 user sites is projected for the year with an expected 325,000 users having access to the system.

LONG RANGE GOALS

The Minnesota Occupational Information System expects to prove itself a valuable and economical occupational and career planning resource. Our goal is to serve 500,000 persons annually, at no cost to the individual user, and at minimum cost to user agencies.

FINANCIAL NOTES

Revenues		
Federal OIS Grant		$274,352.00
State Appropriation		50,000.00
User Fees Paid		36,494.00
Other Income		1,988.00
	Total Receipts	$362,834.00
User Fees Receivable		24,707.00
Refunds, Unused Access		(8,750.00)
	Total Income	$378,791.00
EXPENSES		
Personnel		$197,498.00
Fringe Benefits		31,979.00
Travel		8,019.00
Equipment		1,120.00
Supplies		3,363.00
Rents & Leases		14,632.00
Contractual		
MECC		21,884.00
HECB		30,000.00
Other Contracts		52,416.00
Other Direct Costs		13,871.00
	Total Expenses	$374,581.00
BALANCE		$4,210.00

. . . *continued*

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MINNESOTA OCCUPATIONAL INFORMATION SYSTEM
BOARD OF DIRECTORS JULY, 1978

CONSORTIUM MEMBERS

1. Governor's Affirmative Action Program Director

Stanley Gardner, Equal Opportunity
Department of Personnel
444 Lafayette
St. Paul, Minnesota 55101
(612) 296-3600

2. Commissioner of Economic Security - Designee
State Job Service

Thomas Weber
Special Assignments Supervisor
390 North Robert
St. Paul, Minnesota 55101
(612) 296-3600

3. Commissioner of Education - Designee

*Janet Hyllested, Director, Instant Information Service
Division of Vocational-Technical Education
556 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101
(612) 296-6481

4. Commissioner of Economic Security - Designee
Statewide CETA Coordination

*Rick Hokanson, Supervisor
Program Analysis and Technical Assistance
690 American Center Building
150 East Kellogg Blvd.
St. Paul, Minnesota 55101
(612) 296-6061

5. State Planning Agency Director - Designee

Katherine Gustafson, Planner
Economic Development
101 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101
(612) 296-5726

6. Commissioner of Administration - Designee

*Thomas LaVelle, Assistant Commissioner
208 Administration Building
50 Sherburne Avenue
St. Paul, Minnesota 55155
(612) 296-6950

7. Commissioner of Personnel - Designee

*James W. Fritze, Assistant Commissioner
3rd Floor - Space Center Building
444 Lafayette
St. Paul, Minnesota 55101
(612) 296-3842

*Executive Committee

8. Minnesota Higher Education Coordinating Board Executive Director - Designee

*David Laird (Chairperson)
Deputy Executive Director
400 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101
(612) 296-9259

9. State Community College System Chancellor - Design

Banning L. Hanscom
Associate Vice Chancellor for Student Affairs
301 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101
(612) 296-3758

REPRESENTATIVE MEMBERS

10. Business and Industry Representative

Mark S. Anderson, Vice President
Minnesota Association of Commerce and Industry
480 Cedar Street
St. Paul, Minnesota 55101
(612) 227-9591

11. Labor Representative

Edward Bolstad, Minnesota AFL/CIO
175 Aurora Avenue
St. Paul, Minnesota 55103
(612)227-8583

12. Local Office Representative, State Job Service

Robert Gustafson, District Counseling Supervisor
Minnesota Department of Economic Security
111 Lincoln Avenue S.E.
St. Cloud, Minnesota 56301
(612) 255-3266

13. Student Representative, Department of Education

Barbara Strasser
14845 Chianti Avenue
Rosemount, Minnesota 55068
(612) 423-2281

14. Counselor Representative, Department of Educati
(awaiting appointment)

15. CETA Client Representative

Cynthia Stampley
St. Paul Career Guidance and Training Center
310 Cedar Street
St. Paul, Minnesota 55101
(612) 298-4670

16. Student Representative, Higher Education Advisor Council (awaiting appointment)

Sample from the Minnesota Occupational Information System

OUTLINE OF CONSTITUTION

Most state-based systems have constitutions or by-laws covering these topics. For further information on writing a constitution, consult A Steering Committee Guide for Planning a State-Based Career Information System, Wendy M. Arnold (Eugene, Oregon: Career Information System, 1978).

OUTLINE OF CONSTITUTION

I. Name
II. Goals and Objectives
III. Consortium
IV. Board
V. Board Officers
VI. Board Meetings
VII. Fiscal and Administrative Agency
VIII. Director
IX. Task Forces
X. Amendments
XI. Dissolution

CONSTITUTION OR BY-LAWS

BY-LAWS

OF

EUREKA/THE CALIFORNIA CAREER INFORMATION SYSTEM

ARTICLE I

NAME

The name of the corporation shall be EUREKA/THE CALIFORNIA CAREER INFORMATION SYSTEM (hereinafter sometimes referred to as "Eureka").

ARTICLE II

GOALS AND OBJECTIVES

The goals and objectives of the corporation shall be to foster development and use of career information, to provide practical means of direct access to current career and labor market information in forms which are meaningful to individual students and clients, and to promote integration of such information into schools and other public service agencies in this State of California.

The corporation will seek to accomplish these goals through the appointment and support of a System Director and the assumption of legal responsibility for the work of System Director and his staff. The corporation will receive and disperse funds on behalf of the System and -- in furtherance of its goals -- will provide personnel, accounting, legal and other administrative services under terms of applicable laws and administrative and corporate policies.

ARTICLE III

MEMBERS

Section 1. Membership. Application for membership in the corporation shall be by the invitation of the corporation board and shall be open to those agencies and institutions which are nonprofit (as defined by the State), are using the System at an appropriate level of use (to be set from time to time by Board policy) and are providing an equitable share of the financial resources for support of EUREKA as determined by the Board.

Section 2. Annual Meeting. Unless the Board of Directors or the President of the corporation selects a different time or

Sample from EUREKA: The California Career Information System

POLICY STATEMENT:

STANDARDS FOR USE

WISCONSIN CAREER INFORMATION SYSTEM

OCCUPATIONAL PLANNING

EDUCATIONAL PLANNING

LIFE PLANNING

A Service of the Wisconsin Vocational Studies Center, University of Wisconsin-Madison

STANDARDS OF USE FOR THE WISCONSIN CAREER INFORMATION SYSTEM (WCIS)
Revised 1979

By payment of the WCIS fee or by acceptance of materials the user site agrees to observe the following "Standards of Use" with respect to WCIS services and materials. In turn, by acceptance of a WCIS fee or a state contribution, WCIS agrees to provide the user materials an services stated in this agreement.

The responsibilities of WCIS user sites to coordinate use of WCIS are as follows:

To insure appropriate use of WCIS:

1. A staff member (hereafter designated as the "WCIS Coordinator" or some similar title) must be assigned to carry out the responsibilities as they are outlined here. The WCIS Coordinator should have the authority and the responsibility to serve as the contact person for evaluation, in-service training, information dissemination and on-site implementation and promotion of the Wisconsin Career Information System.

2. The user site is responsible to provide staff time for training in the use of WCIS. Typically, a user site would have one WCIS Coordinator and several other individuals knowledgeable in the operation of WCIS. These individuals may be any persons designated by the coordinator: staff, staff trainees or assistants, students or clients.

3. The user site will assume responsibility for maintaining essential support materials, guides and manuals used in the operation of the system. Any missing materials should be reported by the WCIS Coordinator to the WCIS user services staff member assigned to the site. The user site must guarantee that no out-of-date materials remain in the field. The printed materials are to be returned to WCIS or are to be destroyed.

4. Each user site should provide enough accessible terminal time or access to printed materials so that all potential users will have ample opportunity to interact with the system as their needs dictate.

5. Each user site should place the terminal or printed materials in a location where they are easily accessible to users.

6. Every user site should make a serious effort to integrate WCIS into a coordinated and comprehensive career education system so that potential users of the entire system may benefit from its use to the greatest possible degree.

1878 Educational Sciences Unit I, 1025 W. Johnson Street, Madison, WI. 53706.
Tel: (608) 263-2725
261

Sample from the Wisconsin Career Information System

POLICY STATEMENT:

User Site Contract

State of Alabama
OCCUPATIONAL INFORMATION SYSTEM
First Alabama Bank Building
901 Adams Street
Montgomery, Alabama 36104

USER AGENCY CONTRACT

(1) THIS *AGREEMENT* IS ENTERED INTO THIS _____ DAY OF _____ BY AND BETWEEN _____ HEREINAFTER REFERRED TO AS THE *LICENSEE*, AND THE STATE OF ALABAMA ACTING BY AND THROUGH THE BOARD OF DIRECTORS OF THE ALABAMA OCCUPATIONAL INFORMATION SYSTEM (AOIS) HEREINAFTER REFERRED TO AS THE *BOARD*. IT IS UNDERSTOOD THAT THE PURPOSE OF THIS AGREEMENT IS TO PROVIDE THE NECESSARY HARDWARE AND SOFTWARE FOR OPERATION OF THE AOIS PROGRAM FOR THE PERIOD OF _____ TO _____ AT THE FOLLOWING SITE(S) AS SPECIFICALLY IDENTIFIED BY *LICENSEE*:

FACILITY	STREET ADDRESS	CITY

(2) OWNERSHIP: *LICENSEE* ACKNOWLEDGES THE TITLE OF *BOARD* TO THE PROGRAM AND COVENANTS NOT TO ATTACH THE TITLE OF *BOARD* NOR TO EXPRESSLY OR IMPLIEDLY REPRESENT TO ANY OTHER PARTY THAT *LICENSEE* HAS ANY RIGHTS TO THE PROGRAM EXCEPT AS EXPRESSLY PROVIDED IN THIS AGREEMENT.

(3) NONDISCLOSURE: WHILE THIS AGREEMENT IS IN EFFECT, IT IS RECOGNIZED THAT IT WILL BE NECESSARY FOR *BOARD* TO DIVULGE TO THE *LICENSEE* CONFIDENTIAL INFORMATION CONCERNING THE OPERATION, FUNCTIONING AND USE OF THE AOIS PROGRAM. *LICENSEE* AGREES THAT IT SHALL NOT, WHILE THIS AGREEMENT IS IN EFFECT OR THEREAFTER, AT ANY TIME, DIVULGE OR DISCLOSE SUCH INFORMATION TO ANY THIRD PARTY.

LICENSEE AGREES THAT IT SHALL ONLY DISCLOSE SUCH INFORMATION TO ITS OWN EMPLOYEES AS TO INSURE COMPLIANCE WITH THE REQUIREMENTS OF THIS PROVISION BY ITS EMPLOYEES.

(4) USE OF LICENSED PROGRAM: *LICENSEE* AGREES TO USE EQUIPMENT, INFORMATION FILES, AND OTHER MATERIALS OBTAINED THROUGH OR DEVELOPED BY *BOARD* FOR THE SOLE PURPOSE OF IMPLEMENTING AOIS. *LICENSEE* FURTHER AGREES TO MAKE NO MODIFICATIONS TO HARDWARE OR SOFTWARE PROVIDED BY *BOARD* WITHOUT EXPRESSED WRITTEN APPROVAL OF *BOARD*.

(5) NONASSIGNMENT: *LICENSEE* SHALL NOT ASSIGN OR SUBLICENSE THIS AGREEMENT AND SHALL NOT SELL, LEASE, LOAN, COPY OR OTHERWISE SHARE THE PROGRAM WITH ANY THIRD PARTY. *BOARD* SHALL NOT UNREASONABLY WITHHOLD ITS CONSENT TO ASSIGNMENT OF THIS AGREEMENT TO ANY SUCCESSOR TO *LICENSEE*.

(6) EQUIPMENT PROVIDED BY *BOARD* SHALL REMAIN AT ALL TIMES IN THE SOLE POSSESSION OF *LICENSEE* AT THE ADDRESS(S) SET FORTH IN THIS AGREEMENT, EXCEPT WHEN MOVEMENT HAS BEEN AUTHORIZED IN WRITING BY *BOARD*. THE EQUIPMENT AND PROGRAMS FURNISHED BY *BOARD* SHALL REMAIN THE PROPERTY OF *BOARD* AT ALL TIMES.

(7) FEES: *LICENSEE* AGREES TO PAY *BOARD* EITHER (CHECK APPROPRIATE SPACE) ( ) $3400/ANNUM DUE ON _____ 19___ OR ( ) $350/MONTH FOR 12 MONTHS BEGINNING ON _____ 19___, PER PORT FOR _____ PORTS TO COVER SYSTEM LICENSE AND UNLIMITED USAGE OF AOIS COMPUTER FILES FOR ONE YEAR'S OPERATION.

IN ADDITION *LICENSEE* AGREES TO PAY *BOARD* FOR THE FOLLOWING EQUIPMENT COSTS IF SAID EQUIPMENT IS TO BE FURNISHED BY *BOARD* (CHECK APPROPRIATE SPACES):

( ) FIXED TERMINAL	$65.00/MONTH
( ) PORTABLE TERMINAL	$110.00/MONTH
( ) MICROFICHE READER	$5.00/MONTH

Sample from the Alabama Occupational Information System

POLICY STATEMENT

(REGARDING OTHER SYSTEM ACTIVITIES)

CIS PARTICIPATION IN STATE AND NATIONAL INFORMATION NETWORKS:
A POLICY STATEMENT BY THE OREGON CAREER INFORMATION SYSTEM BOARD

The Oregon CIS Board has consistently favored cooperation with other systems. The current policy which applies to networks and to other systems is:

POLICY:

CIS WILL WORK ACTIVELY IN COOPERATIVE VENTURES THAT ENHANCE THE SERVICE TO OREGON USERS AND FURTHER THE GOALS OF CIS.

PRINCIPLES:

1. SINCE CIS PROVIDES A NEEDED SERVICE FOR STUDENTS, CLIENTS, AND COUNSELORS AND ITS CONTINUED VITALITY IS ESSENTIAL TO ANY OCCUPATIONAL-EDUCATIONAL INFORMATION NETWORK, CIS WILL SEEK TO BE AN INTEGRAL PART OF ANY SUCH NETWORK.

2. CIS WILL PARTICIPATE IN A UNITED EFFORT TO IDENTIFY, DEVELOP, ENHANCE AND USE VARIOUS SOURCES OF DATA TO MEET THE NEEDS OF OREGON USERS.

3. CIS SHOULD SEEK TO AFFILIATE WITH NETWORKS WHICH SUPPORT AND/OR ENHANCE THE PRESENT LOCAL FINANCIAL SUPPORT OF CIS.

4. CIS WILL CONTINUE TO EFFECT MODIFICATIONS OF ITS SYSTEM WHICH WILL MAKE IT MORE USEFUL AS AN INTEGRAL PART OF EMERGING OCCUPATIONAL INFORMATION SYSTEM NETWORKS. SUCH MODIFICATIONS MUST INCREASE OR AT LEAST MAINTAIN THE CURRENT LEVEL OF USABILITY AND ACCEPTABILITY OF CIS BY ITS USERS.

Sample from the Oregon Career Information System

PRICING SCHEDULE #1

STATE OF WASHINGTON
Dixy Lee Ray
Governor

WASHINGTON OCCUPATIONAL INFORMATION SERVICE
c/o The Evergreen State College Olympia, Washington 98505

WOIS USER FEE SCHEDULE
1978-79

The following schedule was adopted by the WOIC Board of Directors at the January 31, 1978 meeting and will become effective for the period July 1, 1978 through June 30, 1979:

1. BASIC USER SERVICE FEE FOR EDUCATIONAL USERS: Shall be $.65 per fall daytime on-campus headcount enrollment with a minimum basic user fee of $300 and a maximum user fee of $2400 per contracting unit. Basic user service fee includes:

   a. Annual lease and right to use one set of printed file materials, one set of needlesort materials, one coordinators handbook, basic handbook supply (50), and right to access WOIS approved computer center delivery sites.

   b. Participation in WOIS user group, WOIS newsletter service, basic 1/2 day user training package and reasonable follow-up user service as required.

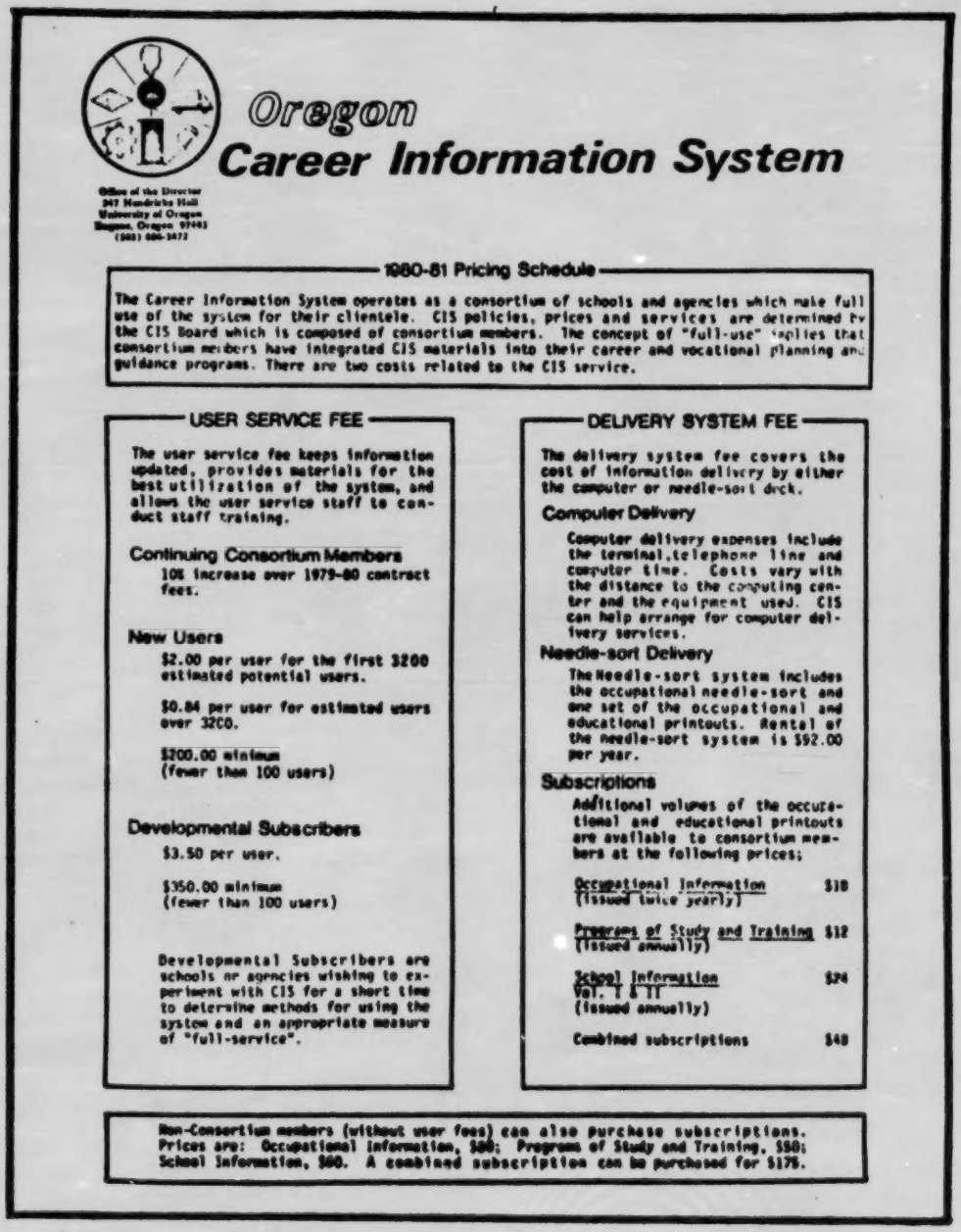
2. BASIC USER SERVICE FEE FOR SOCIAL SERVICE AGENCIES: will be based upon educational users fee schedule but will be individually negotiated in order to meet specialized needs for materials, training or delivery systems.

3. ADDITIONAL MATERIALS and supplies are available as follows:

ITEM	BASIC SERVICE USERS	NON-SERVICE USERS
A. Needlesort decks	$60 per deck	N/A
B. Microfiche (WOIS files)	$60 per set	$100 per set
C. Printed files (4 Volumes)	$35 each	$80 each
D. Combined price per set of 4	$125 per set	$250 per set
E. Computer terminal rental	$125 per month	N/A
F. User Handbook (additional)	$.25 each	N/A

Sample from the Washington Occupational Information Service

PRICING SCHEDULE #2



Oregon
Career Information System

Office of the Director
247 Hendricks Hall
University of Oregon
Eugene, Oregon 97403
(503) 686-3472

1980-81 Pricing Schedule

The Career Information System operates as a consortium of schools and agencies which make full use of the system for their clientele. CIS policies, prices and services are determined by the CIS Board which is composed of consortium members. The concept of "full-use" implies that consortium members have integrated CIS materials into their career and vocational planning and guidance programs. There are two costs related to the CIS service.

USER SERVICE FEE

The user service fee keeps information updated, provides materials for the best utilization of the system, and allows the user service staff to conduct staff training.

Continuing Consortium Members

10% increase over 1979-80 contract fees.

New Users

$2.00 per user for the first 3200 estimated potential users.

$0.84 per user for estimated users over 3200.

$200.00 minimum
(fewer than 100 users)

Developmental Subscribers

$3.50 per user.

$350.00 minimum
(fewer than 100 users)

Developmental Subscribers are schools or agencies wishing to experiment with CIS for a short time to determine methods for using the system and an appropriate measure of "full-service".

DELIVERY SYSTEM FEE

The delivery system fee covers the cost of information delivery by either the computer or needle-sort deck.

Computer Delivery

Computer delivery expenses include the terminal,telephone line and computer time. Costs vary with the distance to the computing center and the equipment used. CIS can help arrange for computer delivery services.

Needle-sort Delivery

The Needle-sort system includes the occupational needle-sort and one set of the occupational and educational printouts. Rental of the needle-sort system is $92.00 per year.

Subscriptions

Additional volumes of the occupational and educational printouts are available to consortium members at the following prices:

Occupational Information (issued twice yearly)	$18
Programs of Study and Training (issued annually)	$12
School Information Vol. I & II (issued annually)	$24
Combined subscriptions	$48

Non-Consortium members (without user fees) can also purchase subscriptions. Prices are: Occupational Information, $80; Programs of Study and Training, $50; School Information, $60. A combined subscription can be purchased for $175.

Sample from Oregon Career Information System

BUDGET

CIS OPERATING BUDGET SUMMARY
Fiscal Year 1981

PROJECTED EXPENDITURES		$ 371,300
Information Analysis	$ 92,695	
User Services	74,534	
Delivery Systems	91,455	
Center Management	76,616	
Indirect Costs	36,000	
PROJECTED REVENUES		$ 371,300
User Service Fees	$ 201,600	
State Department of Education	33,000	
Needle-Sort Rentals	57,300	
Subscriptions to Printouts	9,000	
Computing Center Fees	28,600	
Prime Ventor Administrative Fees	5,600	
Indirect Cost Contribution (by Fiscal Agent)	36,000	

Approved by CIS Board
March 1980

REVENUE REPORT

CAREER INFORMATION SYSTEM
REVENUE REPORT
Fiscal Year 1981

REVENUE SOURCES		11/79 BUDGET	8/15/80	11/1/80	2/1/81	4/1/81	6/30/81	SOLD/SIGNED LESS BUDGETED
USER CONTRACTS								
User Service Fees		$201,600	$204,915	203,861				2,261
Secondary Schools	$156,400		157,328	156,322				(78)
Community Colleges	27,860		25,548	25,763				(2,097)
4-Year Colleges	3,000		2,382	2,671				(409)
Social Agencies	14,260		19,657	19,105				4,845
Needlesort Decks (625 @ $92)		57,500	17,296	46,276				(11,224)
Library Subscript.		4,000	1,253	3,727				(273)
COMPUTING CENTERS		28,800	5,600	24,000				(4,800)
CRIME VENDORS		5,600	1,839	5,297				(303)
NON-CONSORT. SUBSCR.		5,000	2,765	4,670				(330)
OTHER TRANSACTIONS		-0-	-0-	8				8
STATE DEPARTMENT OF EDUCATION		33,000	-0-	-0-				(33,000)
SPECIAL PROJECTS		-0-	-0-	17,814				17,814
TOTAL REVENUE		$335,500	$233,690	$305,653				($29,847)

. . . *continued*

page two

REVENUE REPORT
As of October 31, 1980

CONDARY SCHOOLS	FY 80 User Fees Only	SIGNED	PAID	CONTRACT USER FEE	# of N/S	N/S AMOUNT	PUBLICATIONS	TOTAL
Reno School Dist. #1	2,289	X		2,518	10	920	---	3,438
Clackamas ESD	11,973	X		13,170	19	1,748	168	15,088
Clatsop/Tillamook ESD	3,671	X		4,038	17	1,564	156	5,758
Columbia ESD	3,611	X		3,972	9	828	---	4,800
Coos/Curry ESD	7,186	X		7,905	21	1,932	216	10,053
Douglas ESD	7,719	X		8,491	17	1,564	174	10,229
Gilliam/Wheeler ESD	534	X		587	5	460	---	1,047
Jackson ESD	14,059	X		13,525	40	3,680	408	17,613
Jefferson ESD	1,358	X		1,494	3	276	---	1,770
Lane ESD	14,720	X		16,192	24	2,208	120	18,520
Linn/Benton ESD/Lincoln	11,287	X		12,416	102	9,384	36	21.836
Malhuer Co. ESD	175	X		200	3	276	---	476
Marion Co. ESD	10,949	X		12,044	37	3,404	---	15,448
Marist High School	619	Did not renew		---	--	---	---	---
Polk/Yamhill ESD	4,942	X		5,436	14	1,288	570	7,294
Multnomah ESD	23,875	X		26,263	33	3,036	84	29,383
Umatilla ESD	6,980	X		7,678	39	3,588	336	11,602
Wasco Co. ESD	2,264	X		2,490	9	828	---	3,318
Washington ESD	13,570	X		14,927	14	1,288	48	16,263
Western Mennonite	185			200	1	92	---	292
Lents Educ. Center	--			200	1	92	---	292
LaSalle High School	185	X		200	1	92	---	292
Hood River School Dist.	940	X		1,442	5	460	---	1,902
Ore. St. Sch. for Deaf	185	will not sign		---	--	---	---	---
Chemawa Indian School	343			377	3	276	---	653
MacLaren Sch. for Boys	506	X		557	2	184	18	759
TOTAL - SECONDARY SCHOOLS	$144,126			$156,392	429	$39,468	$2,334	$198,124

REFERENCE FOR FINANCIAL DECISIONS

Financing a Career Information System by Paul Franklin is a useful document for some or all of the Board members. Copies may be ordered from the Oregon Career Information System, 247 Hendricks Hall, University of Oregon, Eugene, Oregon 97403.

FINANCING A CAREER INFORMATION SYSTEM

By Paul L. Franklin

**As prepared under contract
for The Oregon Career Information System**

October 1979

* * * *

This material was produced pursuant to a grant from the Fund for the Improvement of Postsecondary Education, Department of Health, Education and Welfare, and the National Occupational Information Coordinating Committee. However, any support of the activity does not imply endorsement by agencies of any particular career information delivery mode, software system or access technique and should not be interpreted as such.

. . . *continued*

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LONG-RANGE PLANNING AID

Worksheets such as this sample, when completed, can be a useful reference when making financial decisions.

SYSTEM USE WORKSHEET

Total Population	Year 1 (if applicable)			Year 2			Year 3			Year 4		
	Total Number	Number Served	%age Served	Total Number	Number Served	%age Served	Total Number	Number Served	%age Served	Total Number	Number Served	%age Served
Total, All Users												
Secondary School Students												
Community College Students												
4-Year College Students												
Employment Service Clients												
Manpower Trainees												
Welfare Clients												
Vocational Rehabilitation Clients												
Adults, Non-institutional												
Corrections Institutions Inmates												
Veterans												
(List others)												

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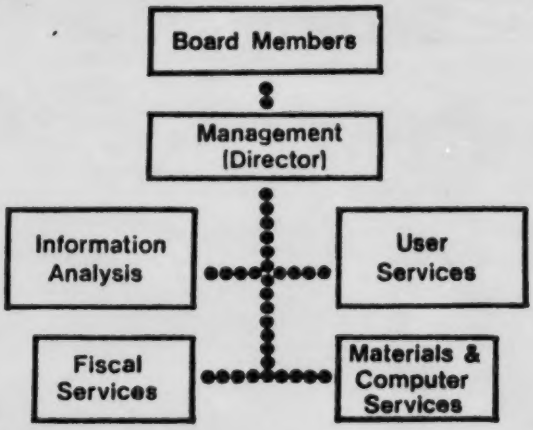
Sample from National Occupational Information Coordinating Committee (developed for use by states applying for 1979 CIDS grants)

ORGANIZATION CHART



Sample from the Association of Computer-Based Systems for Career Information (as shown in Computer-Based Systems for Career Information, a pamphlet included in this Guide in the "Sample Materials" section)

CAREER INFORMATION SYSTEM

STAFF FUNCTIONS

INFORMATION ANALYSIS

* understand and use many data sources
* work with numerous agencies and firms
* quickly screen volumes of material for relevant items
* follow up leads to verify and augment information
* analyze sources and update file statements
* maintain files on each occupation, program and school
* study trends requiring new occupations
* review and update QUEST coding

DELIVERY SYSTEM MANAGEMENT

* load new information
* help set up new user sites
* distribute computer tapes to computing centers
* monitor system operation and prepare reports
* order, inventory, and distribute needle-sorts and books

USER SERVICES

* help schools and agencies plan for system use
* marketing
* training and follow-up
* troubleshooting and communications
* feedback from users

MANAGEMENT

* coordinate and plan
* work with consortium board
* bookkeeping and finance

STAFF POSITION DESCRIPTIONS

Executive Director	Supervises all activities of MOIS, acts as liaison between MOIS staff and Board of Directors. Responsibility for overall development of programs and services, staffing, fiscal integrity of the MOIS operaiton, and meeting organizational goals.
Manager, User Services	Directs user services activities, including sales, training, customer support, manuals, publicity, promotional activity, etc.
User Services District Manager	Responsible for direct customer contact, including sales, support, training.
User Services Trainer	Responsible for in-depth training of customers in use of MOIS System.
Manager of Information Development	Responsible for all aspects of gathering, validating and writing occupational school and financial aid information.
Information Development Specialist (Occupational Information)	Responsible for entries in occupational information files.
Information Development Specialist (School/Financial Aid Information)	Responsible for reports, proposals, and publications.
Operations Manager	Responsible for computer and communications hardware, telephone network, technical system operation.
Operations Technician	Responsible for maintenance of terminals and communications hardware.
Manager, Systems and Evaluation	Responsible for system software, evaluation, publications, and maintenance of data base; liaison with User Group Council
Manager, Financial Affairs	Responsible for maintenance of organization's books and financial records, for government reporting, for preparation of financial reports, for facilitating receipts and accounts payable.
Information Development Specialist (Special Projects)	Responsible for reports, proposals, and publications.
Secretary	Responsible for correspondence, filing and all clerical and allied administrative functions.

Sample from the Massachusetts Occupational Information System

STANDARDS FOR ORGANIZATIONAL STRUCTURE

This sample is from the Handbook on Standards and Accreditation, by the Association of Computer-Based Systems for Career Information. The entire Handbook can be ordered from the ACSCI Clearinghouse, 247 Hendricks Hall, University of Oregon, Eugene, Oregon 97403.

APPENDIX B1

I. Organization

Standard 1.1. An organization should include key institutions representing both producers and users of career information.

A. List the organizations participating in policy-making for your system.

B. How were these organizations selected?

C. Are there current or projected users of your system which are not represented by these organizations? If not, why not?

Standard 1.2. A written charter, constitution, or by-laws should govern the policies of the system.

A. Is a governing document available and up-to-date?

B. What form... and informal agreements are specified with the participating or supporting organizations?

C. What policies and procedures are adopted to carry out the charter, constitution or by-laws?

D. Do the charter, constitution or by-laws set the principal purpose of the organization as the development and computer-based delivery of career information?

Standard 1.3. Management of the system should be within the system's defined service area.

A. What is the system's service area?

B. Is the central office for the system located in the service area?

C. Are other offices organized to bring user services support to significant user populations?

Standard 1.4. The system should have a director or chief executive officer to coordinate and manage operations, to provide leadership to the organization and to serve as liaison to advisory bodies.

A. Who is the director?

B. What requirements were used to select the director? Attach job description.

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C. What are the incumbent's qualifications for the job? Attach resume.

D. Is the incumbent knowledgeable about system policies and operations? If not, why not?

Standard 1.5. Professional staff members should be available to develop information, manage the delivery system and assist user agencies in disseminating information to end-user clients.

A. List the staff (by full-time equivalencies). What are their assigned tasks? Attach job descriptions.

B. Are key staff trained in appropriate disciplines and have they had training and experience which qualify them for their positions? Attach resumes.

Standard 1.6. Management should provice in-service training for existing and new staff.

A. What training needs have been identified?

B. What programs have been planned or initiated to satisfy these needs?

C. What qualifies the trainers for the task?

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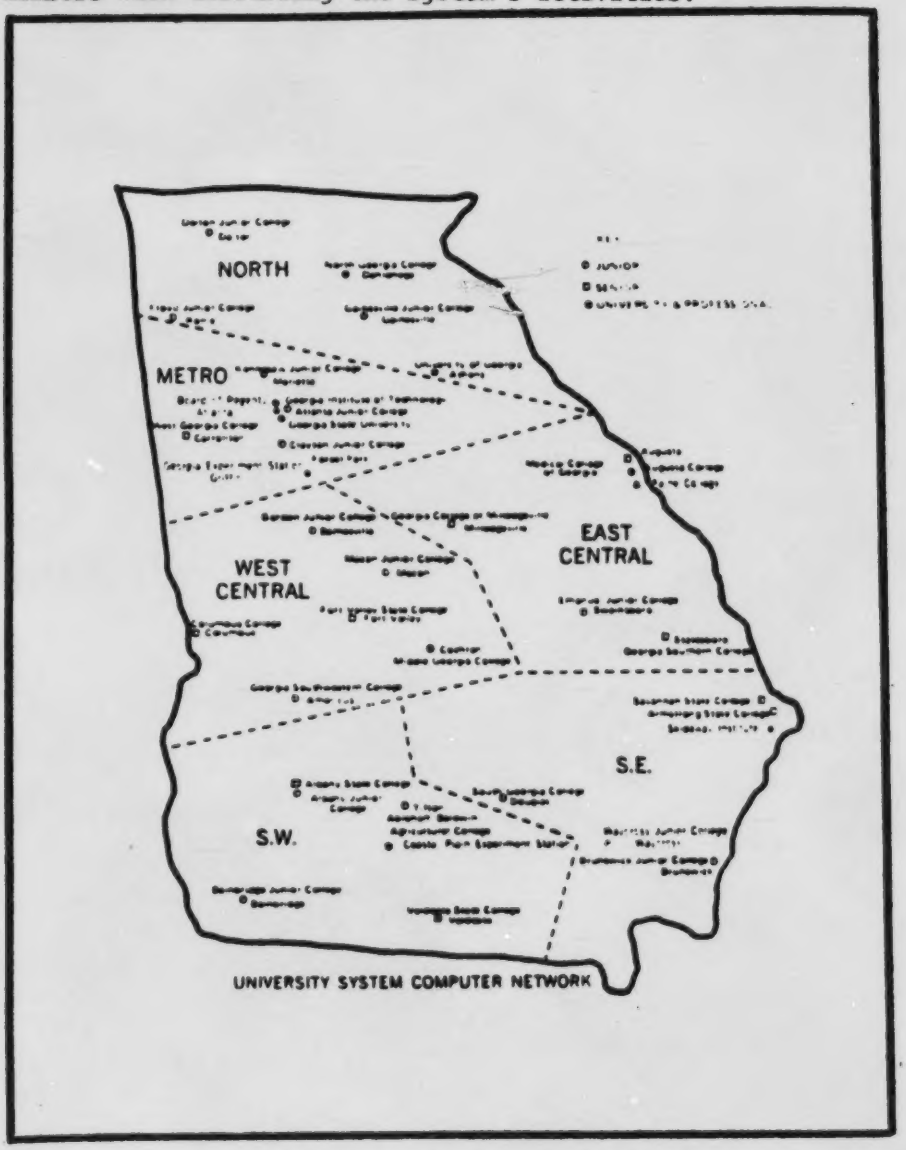
Sample from Association of Computer-Based Systems for Career Information

MAP OF STATE COMPUTER NETWORK

Information about the computers on which the system is run, both in the form of a map (see below) and a narrative description (see next sample), is often useful to Board members when discussing the system's activities.



Sample from the Georgia Career Information System

COMPUTER DELIVERY SYSTEMS

Office of the Director
247 Hendricks Hall
University of Oregon
Eugene, Oregon 97403
(503) 686-3079

Oregon Career Information System

COMPUTER DELIVERY SYSTEMS
Fall, 1980

The Career Information System has been installed on several large time-sharing systems, including DECsystem-10, Honeywell 6600 series, Honeywell Sigma 6, IBM systems (370, 4341, 3031), and Control Data CYBER 70. It has also been installed on several minicomputer systems, including DEC PDP-11 RSTS, Hewlett-Packard 2000F, HP 2000 ACCESS, and HP 3000, and the Data General Eclipse. A microcomputer version of CIS is in development.

HP BASIC VERSION

The Hewlett-Packard versions of the system are written in H-P Timeshared BASIC. The programs and files required to run the CIS system require approximately 9000 blocks of disk storage, or about 3 to 5 million characters. Programs and files used to update and maintain the system (at the state level) require an addition 200 blocks. A small amount of storage at each installation can be used to collect statistical information on use of the system.

FORTRAN IV VERSION

Other host computers are running a FORTRAN IV version of CIS, which was written to be transportable. Machine dependent statements and routines have been identified for ease in conversion. The system runs in 16K, 36-bit words on the DECsystem-10, and 12K, 60-bit words on a CYBER system. The data files require from 3 to 6 million characters of disk storage. Programs for update and maintenance are operational on the DECsystem-10, CYBER, and Honeywell 6600. Routines to collect and report statistical information are being programmed.

TERMINALS

The CIS system is designed to be accessed with a printing terminal, usually over phone lines. Several types of terminals can be used sucessfully, and the CIS staff is pleased to consult with users who already have a terminal, or who are considering a lease or purchase of one.

CIS SOFTWARE AND DATA DISTRIBUTION

The standard CIS distribution package is designed for installations which have some programming support available to load and maintain the programs and data. The package includes annotated source listings which show changes made since the previous distribution.

. . . *continued*

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CIS distributes the programs on magnetic tape in a variety of formats at either 800 or 1600 BPI recording densities:

BASIC version: HP2000F HIBERNATE tape

FORTRAN version: DECsystem-10 ASCII or BACKUP tape
IBM EBCDIC tape
Honeywell 6600 FILESYS tape

CIS will make a "best effort" attempt to provide host installations with a compatible, machine-readable version of the system. To Oregon installations, CIS distributes an updated information data base 5 times each year. Out-of-state installations receive a series of utility programs and programs used to update information in their state data base. All installations may also receive, as need dictates, the equivalent of one day of consultation per year on the installation and maintenance of the CIS computer software.

ENHANCED SUPPORT

Installations which do not have programming support available can contract with CIS to provide an enhanced level of support, beyond the standard package. This alternative can be tailored to the needs of each installation, and can include:

(a) Installation, testing, and continuing maintenance of CIS on their system (or consulting help to assist in the installation).
(b) Machine readable versions of CIS programs for machines other than those listed above.
(c) Consultation on computer installation management issues, or on developing a relationship between the provider of state or local CIS services, its users, and the host computer installation.

Where enhanced support is needed, CIS can arrange for assistance or materials from other host installations, perform maintenance services directly on an installation's computer via a dial-up line, or arrange for a service bureau to provide computer time or services. The fee for enhanced services is fixed during the contract year, and is negotiated on the basis of estimates of the cost to provide services.

AGREEMENTS

The use of the Career Information System computer software is covered in an annually-renewed USE AGREEMENT. The agreement discusses ownership rights, use of the programs, information updates (in Oregon), usage fees and costs, and the rights and obligations of both CIS and the host installations.

INFORMATION

For more information about CIS software requirements, or about CIS on specific computer systems, please contact the Computer Services group of the Career Information System, (503) 686-3872.

Sample from the Oregon Career Information System

GLOSSARY

Systems for Career Information

ACSCI	Association of Computer-Based Systems for Career Information The national association of CIS's
AEL-CIS	Appalachian Educational Laboratory Career Information System Occupational information and high school textbooks developed by the Appalachian Educational Laboratory and published by McKnight, Inc.
APGA	American Personnel and Guidance Association
Area	Specific geographic region of the state for which occupational information has been localized
ATTR	The CIS computer file containing QUEST attributes
AVA	American Vocational Association
BIB	The CIS computer file containing bibliographic references for specific occupations, and also pamphlets which can be ordered regarding an occupation
BLS	Bureau of Labor Statistics A part of the U.S. Department of Labor that is responsible for much occupational data
CAEL	Council for the Advancement of Experiential Learning
CAREER KOKUA	The Hawaii Career Information System
CBO	A community-based organization
CETA	Comprehensive Employment and Training Act "CETA Prime Sponsors" are local CETA program administrative agencies.
CHOICES	A career information delivery system developed by the Canadian Ministry of Manpower and Immigration and now marketed privately in the U.S.
CIC	Career Information Center The place at a school or agency where CIS and other materials are available for student and client use
CIS Board	The governing body of the Career Information System, composed of representatives of CIS users, CIS information sources, state agencies concerned with career and vocational education, and other persons
CIS Coordinators	Individuals designated and trained to guide CIS usage at each user site.

CLUBS	The CIS computer file which contains addresses and phone numbers of persons to contact regarding different clubs
Cluster	A grouping of occupations based on a common characteristic (e.g., tasks, function, or skills)
COCIS	Colorado Career Information System
COG	Council of Governments
COIN	Career and Occupational Information Network The commercial name for the Michigan Occupational Information System, now being marketed privately
Common Section	The initial portion of each CIS occupational description which contains information common to all area of the state
CPS	Current Population Survey The source of monthly national labor force data
CRT	Cathode ray tube Used in some computer terminals to visually display information
DCIS	Division of Career Information Services (Originally called NOIS-National Occupational Information Service) Formerly an office in Department of Labor's Employment and Training Administration that gave state grants to implement systems of career information
Delivery System	A device or mechanism for delivering information; the computerized and needle-sort versions of CIS are two examples
DESC	The CIS computer file containing occupational descriptions
DISCOVER	A system of career guidance developed by JoAnn Harris-Bowlsbey and marketed by IBM
DOL	U.S. Department of Labor
DOT	Dictionary of Occupational Titles A publication of the Department of Labor that defines occupations
DOT Data Display	Occupational analysis data for detailed DOT occupations
DPT	Data-People-Things A way of organizing worker traits used in the Dictionary of Occupational Titles
Dump	A printout of an entire computer file (e.g., a description file, an area file, the education and training file)
ECES	Educational and Career Exploration System A system of career information used in Michigan
EIC	Educational Information Centers

EMPLY	The CIS computer file containing information on summer jobs
ERIC	Educational Resource Information Clearinghouse A national computerized bibliographic service for education research
ETA	Employment and Training Administration A part of the U.S. Department of Labor
EUREKA	The California Career Information System
Fall Workshops	The basic introduction and instruction given to counselors, career education coordinators, and other persons who will be using CIS at a school or agency user site
File	A specific area of computer storage (e.g., DESC file or BIB file)
FINAID	The CIS computer file containing financial aid information, currently being pilot tested
FIPSE	Fund for the Improvement of Post-Secondary Education A part of the U.S. Department of Education
GATB	General Aptitude Test Battery A vocational aptitude test widely used in Employment Division offices
GED	General Education Degree A high school equivalency test and certificate
GED	General Education Development One of the occupational characteristics compiled by the Department of Labor
GIS	Guidance Information System A system of career information marketed by Timeshare Corporation
Green Book	The CIS computer loader's manual
HEGIS	Higher Education General Information Survey
Honeywell	A type of computer that CIS is run on in several states
HP	Hewlett-Packard A computer company on whose equipment CIS runs
IBM	International Business Machines, another computer company
Implementation Handbook	A CIS publication used by Site coordinators to promote the most effective use of CIS
JAV tape	Originally the data source for the DOT Data Display
LEA	Local education agency

LMI	Labor market information
MA	Manpower Administration of the U.S. Department of Labor (Now the Employment and Training Administration)
MIS	Management Information System
NATED	The National Education Information Project, a developmental project jointly funded by Career Information System states.
N/S	Needle-Sort The manual card-sort information delivery version of CIS
NCHEMS	National Center for Higher Education Management Systems
NIE	National Institute of Education
NOICC	National Occupational Information Coordinating Committee
NSEF	National Student Educational Fund
NSF	National Science Foundation
NVGA	National Vocational Guidance Association
OAP	Occupation Aptitude Pattern A pattern of three aptitudes from the DOT that are more or less common for a group of occupations
OES	Occupation Employment Statistics Program
OFSPS	Office of Federal Statistical Policy & Standards
OGA	Occupational Group Arrangement The structure of the first three digits of the DOT code structure
OIAS	Occupation Information Access System The former name of the computerized CIS, now called "CIS"
OIS	Occupational Information System an occupational data structure being designed by NOICC
OOH	Occupational Outlook Handbook A publication of the Department of Labor
On-Line	Refers to the immediate availability of information and programs in the computer. CIS programs and information are on-line.
OVIS	Ohio Vocational Interest Survey An occupational interest inventory
PREP	The CIS computer file containing preparation information
PROG	The CIS computer file containing programs of study and training offered in the state

PSE	Public Service Employment, funded by CETA
QUEST	A questionnaire regarding work preferences by which the CIS user can begin an organized exploration of CIS occupations
QUEST list	A list provided the user after completing QUEST, containing those occupations which were not eliminated by the user's QUEST responses
R & D	Research and development
RFP	Request for Proposals Detailing the requirements of grant applications for specific funds
R & S	Research and Statistics section of the Employment Division (In some states it is called Research and Analysis (R & A))
SCH	The CIS computer file containing information on all post-secondary institutions in the state
SDS	Self-Directed Search A pencil and paper interest inventory developed by John Holland
SIC	Standard Industrial Classification The national standard for coding employing establishments
SIGI	A system of career information developed and marketed by the Educational Testing Service
SMSA	Standard Metropolitan Statistical Area
SOC	Standard Occupational Classification Being developed by the Office of Federal Statistical Policy and Standards in the U.S. Department of Commerce
SOICC	State Occupation Information Coordinating Committee
Specs	Computer specifications for running a particular program
SVP	Specific Vocational Preparation One of the characteristics of jobs compiled by the Department of Labor
Update	The continuing process by which the information files are revised and kept current
User	Either the individual person who uses one of the CIS delivery systems or a school or agency where CIS is installed and in use
User's Handbook	Either the needle-sort or computer user's guide to using CIS. Contains the QUEST questionnaire and lists of occupations, programs of study and training, schools, and school topics.
USOE	U.S. Office of Education New part of the U.S. Department of Education

VIEW	A set of occupational and educational information using microform as a delivery medium
VISIT	The CIS computer file containing names, addresses and phone numbers of persons willing to talk to users about their career
WOIS	Washington Occupational Information Service
WTG	Worker Trait Groups Groups of occupations with more or less common levels of data, people, and things. Used in the Third Edition DOT.
XPLOR	Former name of the CIS CLUBS file

SAMPLE COMPUTER PRINTOUT

Samples of the information which the system delivers serve to both educate Board members and aid them when speaking of the System to others. A sample of the type shown below, which explains the data sources used in compiling the system's information, is often of interest to Board members from data-producing agencies.

SAMPLE DATA SOURCES

FOR SELECTED CIS INFORMATION FILES

Source notes for the statewide occupational file for Engineers illustrate the variety of sources used to develop occupational material. Each occupation presents its own data problems, so sources vary with the occupation and the local area for which the material is being developed.

OCCUPATIONAL DESCRIPTION

DESC FOR 2411 ENGINEERS

ENGINEERS DETERMINE HOW TO COMBINE RAW MATERIALS TO PRODUCE GOODS OR BUILD PROJECTS SUCH AS ROADS, DAMS, AND BRIDGES. DUTIES VARY WITH ENGINEERING FIELDS, BUT MAY INCLUDE PLANNING AND OVERSEEING CONSTRUCTION AND RESEARCH PROJECTS, DESIGNING EQUIPMENT AND MACHINERY, AND INSPECTING AND TESTING MATERIALS AND PRODUCTS.[1]

SPECIALTIES: AEROSPACE (DOT# 002.061-014), CIVIL (005.061-014), INDUSTRIAL (012.167-030), NUCLEAR (015.061-014),CERAMIC (006.061-014), CHEMICAL (008.061-018), ELECTRICAL (003.061-018), AND MECHANICAL ENGINEERS (007.061-014). FOR MORE INFORMATION ON AEROSPACE ENGINEERS, SEE DESC 24111; CIVIL ENGINEERS (DESC 24113); ELECTRICAL ENGINEERS (DESC 24114); MECHANICAL ENGINEERS (DESC 24116). CIS RELATED OCCUPATIONS: MATHEMATICIANS & STATISTICIANS (SEE DESC 2332), PHYSICAL SCIENTISTS (DESC 2624).[2]

---APTITUDES: ABOVE AVERAGE ABILITY TO VISUALIZE OBJECTS OF TWO AND THREE DIMENSIONS TO PERCEIVE DETAIL, AND TO COMMUNICATE VERBALLY AND USE NUMBERS; ABILITY TO PLAN AND MAKE DECISIONS BASED ON DATA AND TO WORK ACCURATELY; A LIKING FOR WORK OF A SCIENTIFIC OR TECHNICAL NATURE. HIGH MATH AND SCIENCE APTITUDE.[3]

---WORK SETTING: MOST WORK BOTH INDOORS AND OUTDOORS. EMPLOYERS: MANUFACTURERS SUCH AS ELECTRICAL AND ELECTRONIC EQUIPMENT, AIRCRAFT, MACHINERY, CHEMICAL, SCIENTIFIC INSTRUMENT, AND METALS FIRMS, GOVERNMENT, CONSTRUCTION, AND PRIVATE CONSULTING FIRMS.[4]

[1] Occupational Outlook Handbook, (1980-81 ed.), pp. 282-27[illegible].
Dictionary of Occupational Titles, 4th ed., pp. 15-36.
California Occupational Guides, Nos. 3, 5, 8, 11, 12, 39, 367, 426.
Career materials from professional organizations (see note *).
CIS Review Panel (see note **).

[2] Dictionary of Occupational Titles, 4th ed., pp. 15-36.
Occupational Outlook Handbook, (1980-81 ed.), pp. 282-27[illegible].

[3] Dictionary of Occupational Titles Data Display Tape, 197[illegible].

[4] Lawrence's Manpower Needs, IV pp. 124-129.
Occupational Outlook Handbook, (1980-80 ed.), pp. 282-292.
California Occupational Guides, Nos. 3, 5, 8, 11, 12, 39, 367, 426.
Career materials from professional organizations*
CIS Review Panel**

Sample from the Oregon Career Information System

SYSTEMS' BROCHURES

EUREKA

The California Career Information System

the michigan occupational information system!

Are you looking for information to help you make an important decision about your education or career?

Would you like to learn about jobs which are matched to your talents and interests?

Whatever your career needs, the MOIS program is designed to serve you. Sponsored jointly by the U.S. Department of Labor and the Michigan Department of Education, MOIS is a state-wide information storage and retrieval system which provides a range of descriptive information about 200 different occupations in Michigan.

The MOIS Approach:

- MOIS distributes the information "Statewide" through a variety of media.
- MOIS provides the user with an overview of career options and opportunities helpful in making effective career decisions.
- MOIS reduces the amount of "leg work" individuals must usually do to find current information on jobs and careers.
- MOIS reduces the amount of time required by counselors to locate current information.
- MOIS collects and organizes information about Michigan programs and schools for easy use.

CIS

GEORGIA CAREER INFORMATION SYSTEM
Georgia State University, Atlanta

Occupational Information To Aid Career Decision Making

Georgia Career Information System

OHIO CAREER INFORMATION SYSTEM

INFORM – MOTIVATE – EXPLORE

C.I.S.I.

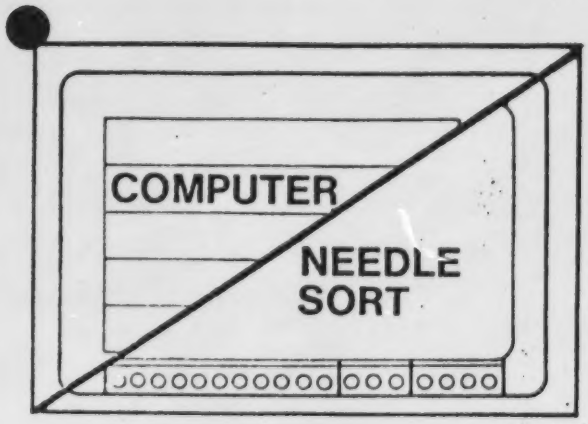
CAREER INFORMATION SYSTEM of IOWA
Iowa Department of Public Instruction

Iowa
a place to learn
a place to work
a place to grow

CAREER KOKUA

The Hawaii Career Information System

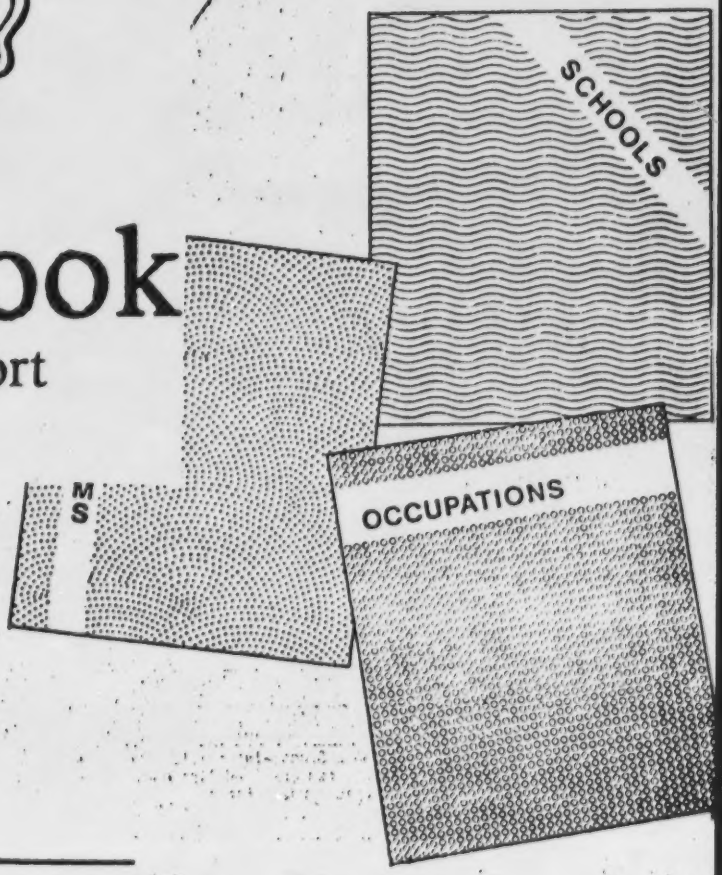
USER'S HANDBOOKS



USER'S HANDBOOK

NAME _____

GEORGIA CAREER INFORMATION SYSTEM



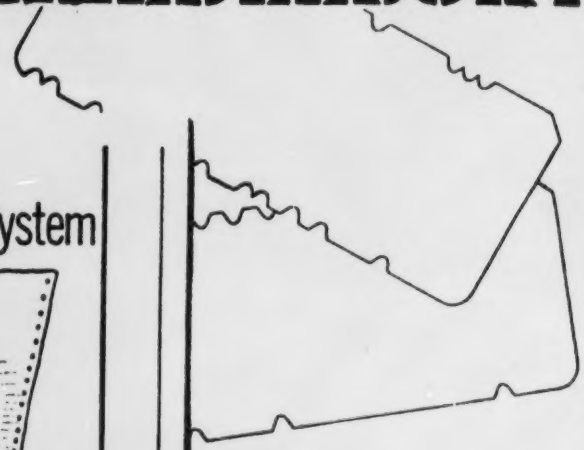
wois USER HANDBOOK

PROCESS G-6
User Handbook

(Process of Reviewing Options thru Career Exploration and Self Study)

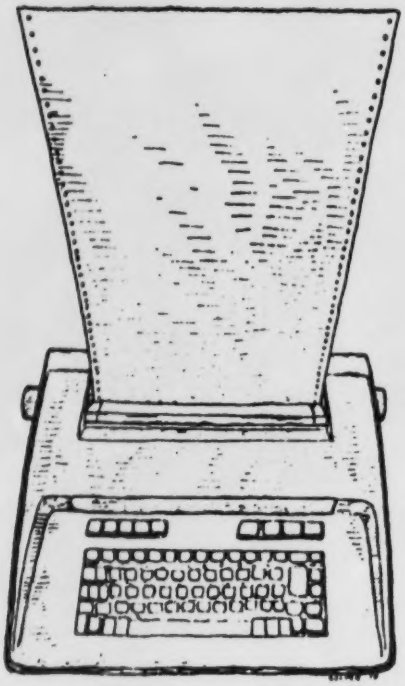
MINNESOTA OCCUPATIONAL INFORMATION SYSTEM

NEEDLESORT



S HANDBOOK

Idaho
Career Information System



User's Handbook

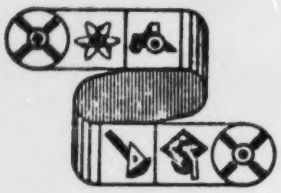
Computer
Handbook

How to Begin
EST Questionnaire
Occupations
Occupational Divisions
Programs of Study
Schools
School Topics
Using the Computer Terminal
Entering the World of Work

EUREK

"The California
Information Sy

Computer



USER HANDBOOK

MASSACHUSETTS OCCUPATIONAL INFORMATION SYSTEM

NCIS nebraska career information system

Computer-Based Systems for Career Information

Providing Information to People Who Need It

This brochure explains computer-based systems of career information:

what INFORMATION they provide.

how they DELIVER the information to people.

what types of USER SERVICES they provide.

the ORGANIZATION that supports this service.

Information about professional organizations and funding agencies which assist in the development of these systems is also included.

Good career decision-making—from youth through retirement—requires accurate occupational and educational information. High unemployment, new occupations, dissatisfied college graduates and increasing numbers of women going to school and work are a few of the many reasons people need facts about jobs, schools and training opportunities.

Too often, those seeking such information have to search through numerous pamphlets, books and reports, only to find outdated statistics, generalizations, and "national averages." Many states are installing computer-based systems of career information to provide people with the information they need:

comprehensive information from ONE SOURCE.

information about CURRENT wages, costs and trends.

information based on FACTS and reliable data.

information specifically about the LOCAL area.

What career fields are best for my interests and abilities?

Where can I get training in auto body repair?

Which schools offer programs in veterinary medicine?

What are the earnings of graphic artists in my local area?

What is the employment outlook for carpenters in the state?

A computer-based system of career information will answer these and countless other questions on the minds of career decision-makers.

Information Delivery User Services Organization

First and foremost these systems are the source of a wealth of relevant career information. Information covering numerous topics is presented in three major areas:

Occupations

Job duties

Aptitudes

Working conditions

Earnings

Employment outlook

Relevant high school coursework

Preparation methods

Entry routes

Programs of Study and Training

Program characteristics

Typical coursework

Occupations related to the program

Admissions requirements

Schools offering the program

Degrees conferred

Transfer programs

Postsecondary schools

General information

Programs of study

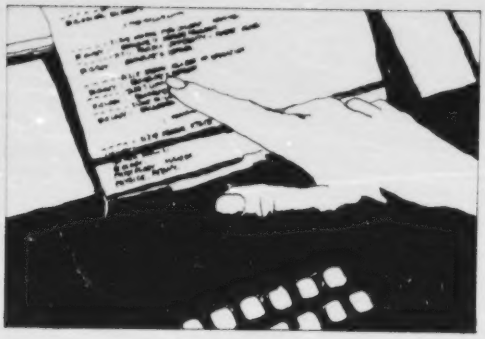
Admissions

Housing

Costs and financial aid

Student services

Most systems also provide supplementary information files covering topics such as related resource documents, people to contact for an occupational visit, special information on women or the handicapped, national occupational and educational opportunities, or detailed financial aid information.



All information meets important quality standards. It is:

Comprehensive

Information in the system covers at least 90% of the employment opportunities and all of the accredited and licensed postsecondary institutions in the state.

Readable

Information is presented in easily read language and format (most entries are 250-350 words). The information includes examples and comparisons which are understandable by career decision-makers from junior high students to adults.

Locally relevant

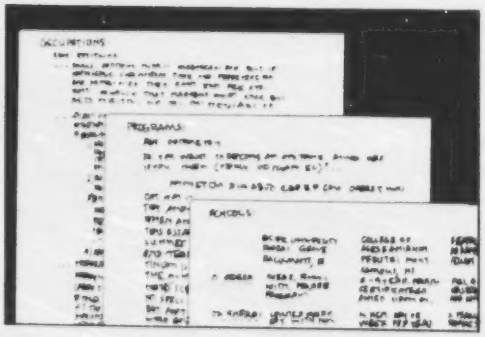
All information reflects the conditions of local labor markets and educational institutions in the state.

Accurate

Information is carefully validated using the best government and private data and supplementing it when necessary.

Up to Date

All information is reviewed and updated continuously. It is redistributed at least yearly.



Information Delivery User Services Organization

While information is the heart of these systems, information must be delivered before it can be used. Delivery systems are characterized by the following:

Information is delivered via standard, low-cost printing computer terminals.
A personal copy of the information is provided for people to use as a future reference.

Systems are easy to use.
The user is given a simple set of computer operating instructions and any errors are easy to correct. People can operate these systems without the aid of trained staff, so counselors are free to do more counseling.

Systems are usable by a wide variety of people.
People of all ages and varying abilities (including the handicapped and disadvantaged) benefit from using these systems.

Systems are adaptable to a wide variety of traditional and nontraditional institutional settings.
Secondary and postsecondary schools use systems of career information as part of their guidance programs and as a resource for instruction. Adult clients in social agencies, CETA offices, and prisons also use these systems. A comprehensive information source is an economical way to provide information to a wide and divergent audience.

Systems make both specific and exploratory information searches easy.
People who know what information they want can go straight to it. Others are provided an easy way to identify occupations related to their interests, abilities and preferences. This process yields a list of relevant occupations they can use to begin their information search.

Systems are economical.
By using existing data sources whenever possible, combining information analysis and delivery in a single agency, making use of modern computer technology, and providing a product useful to a variety of audiences, systems of career information offer the most economical way to deliver current information.

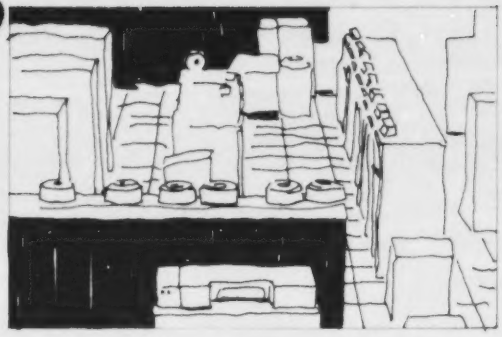
Providing Information to People Who Need It...

Government
Business
Industry
Education

Data from a variety of sources . . . .

is collected, analyzed and written . . . .

stored in computers delivered via termin



Computer

HELLO, JANE.

WHICH FILE?

SIXTY OCCUPATIONS QUALIFY.

DO YOU NEED HELP?

WHAT NEXT?

User

LIST

YES

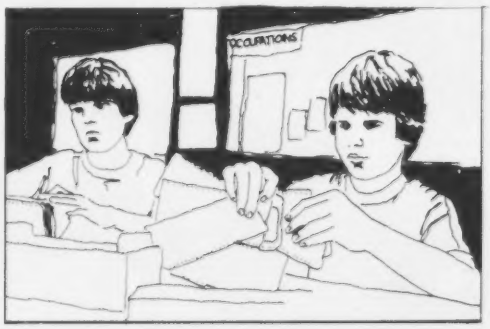
OCCU

WHY NOT?

ADD 12

Interactive computer programs operate on easy English language commands.

Some systems provide clients the option of manual information search and delivery. In some cases this means a deck of sortable cards or a paper scan device for all the occupations in the system and a set of information books. In other cases the information is delivered on microfiche. Manual delivery increases the flexibility of these systems and is particularly useful for some remote areas which may have difficulty making economical computer connections.



and
als . . . .

to a variety
of people . . . .

who use it to help
make informed choices
about jobs, training and schools.

Information Delivery
User Services
Organization

A system of career information doesn't just deliver a product—it trains staff at user sites how to use the system. User Services staff form a vital link between the system and its users. User Services functions include:

Placing the system in various institutions in the state. Public, private and educational policy-makers must be aware of the advantages and availability of a high quality system of career information before the people who need the information will have access to it.

Conducting training workshops for counselors and teachers, aides and other staff. These workshops inform site coordinators from each user site how to operate the system, keep them abreast of new system products and services and help them find the most effective applications of a system of career information in their particular setting.

Evaluating the usefulness of system products. User Services staff work with site coordinators to determine how successfully the system is meeting users' needs and find ways to increase its effectiveness. The constant communication between User Services staff and consumers ensures that the system stays closely attuned and responds quickly to the needs of its users.

Consulting, answering questions, and helping to solve problems a site might encounter during the course of the year. Many products in today's marketplace are sold without any followup. A system of career information places emphasis on User Services to help guarantee quality use of a quality product.

Each site using a computer-based system has a site coordinator. Site coordinators are often counselors or teachers. Together with aides and sometimes students they work with all those who use the system at their site to get the most benefit from it. Site coordinators might also set up a career resource center, work with teachers to integrate career information into their curriculum, or find better ways to make social agency clients or students aware of the system's availability. Counselors find that an information system frees them to spend more time on important advisory and guidance functions.

Regional user groups are often formed to coordinate and improve the use of a system of career information. These groups exchange innovative ideas and implement cost sharing arrangements.

User sites and regional user groups have developed curriculum clusters, career centers and audio-visual materials based on systems of career information.

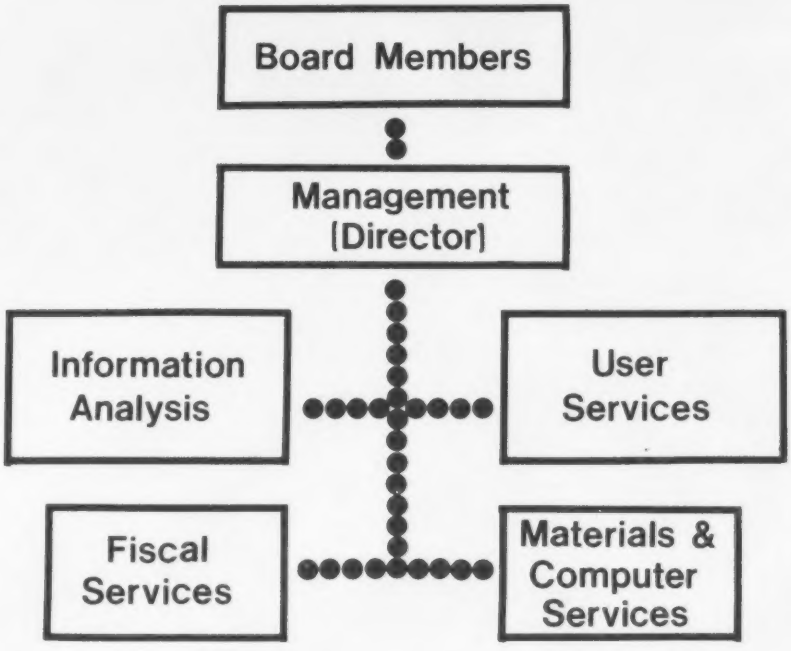
Information Delivery User Services Organization

Proper organization is an important part of a successful system of career information. From an organizational perspective these systems are:

State-based programs involving state data agencies and local service agencies, schools and counseling programs. Small organizational units duplicate services and functions and lose the economy of scale of a state-based organization. Systems based solely on national information can obscure local labor market and educational differences. (Neighboring states sometimes take a cooperative approach where local labor market conditions are appropriate.)

Consumer-oriented systems governed by representatives from system users and information producing agencies. Giving consumers a policy-making voice ensures that systems are responsive to their needs and helps keep costs to a minimum.

Staffed primarily by professional information analysts and user services personnel. Computer services, materials distribution, and fiscal services staff provide important support functions.



CONSTITUTION

for a statewide system of career information

ARTICLE I.

Goals and Objectives

The goals and objectives of this consortium shall be to foster development and use of career information, to provide practical means of direct access to current career and labor market information in forms which are meaningful to individual students and clients, and to promote integration of such information into schools and social agencies in this state.

Groups sometimes represented on the Governing Board of a system of career information:

Secondary Schools
Community Colleges
Universities
Vocational-Technical Schools
CETA Prime Sponsors
State Department of Education
State Occupational Information Coordinating Committee
Education Information Center
Correctional Institutions
State Employment Research and Analysis Offices
Libraries
TRIO Program Administrators (Talent Search, Upward Bound, Special Services, Education Opportunity Centers)
Organized Labor
Business and Industry
Social Service Agencies
Students and Clients
Other organizations and agencies in each state which have an active interest in the development and use of such systems

These Systems Work

Computer-based systems of career information are a proven, effective method for delivering occupational and educational information. People like to operate the computer terminals! Easy to understand programs put the user in control of one of modern society's most important pieces of equipment—the computer. This kind of delivery adds a motivational force of its own, encouraging use and reuse of the system. Studies show that people have fun using these systems, want to use them again, recommend them to peers, and talk about them with friends, teachers, counselors, parents and others.

Systems of careeer information have other benefits as well. Evaluation studies show that people gain occupational and educational knowledge, receive new job ideas, and often change career plans after using these systems. A recent national study by Herbert Parnes highlighted the importance of occupational information, reporting that ". . . the extent of a youth's information about the world of work is positively linked to measures of his success in the labor market" (Parnes, p. 192).

A study by the College Board identified the need for occupational and educational information among the large number of adults in career transition, noting that ". . . they are most interested in information services, particularly specific information on jobs, careers, or educational opportunities" (Arbeiter, p. 22).

But the best testimony to the value of these systems is the growing number of schools and social agencies using computer-based systems of career information as part of their counseling programs. Clients, counselors, teachers and administrators alike find these systems to be an invaluable resource for career decision-makers. They know that **good career decisions are based on accurate information.**

These systems work!

Organizations Providing Assistance

Several computer programs to perform the career information delivery function have been developed in the last ten years. States implementing systems of career information today use one of the existing delivery systems. However, a computer-based system of career information is much more than a computer program. People in each state must establish their own organization to perform information analysis and user services at the local level. For information about where to get assistance in developing new state systems people can contact the Association of Computer-Based Systems for Career Information (ACSCI).

ACSCI

The Association of Computer-Based Systems for Career Information is a professional organization of state-based systems. Members benefit from cooperative research and development projects, and new members gain the invaluable advantage of drawing on developmental work already accomplished rather than having to learn everything from first-hand experience. ACSCI helps ensure the integrity of the product and the quality of the service by providing standards and performing accrediting functions. The Association also obtains grant monies, provides technical assistance and educates the public and government about the need for systems of career information.

NOICC & SOICC

The National Occupational Information Coordinating Committee (NOICC) and the fifty State Occupational Information Coordinating Committees (SOICC) were created under the **Education Amendments of 1976** (P.L. 94-482). NOICC and SOICC roles were further defined in the **Comprehensive Employment and Training Act (CETA) Amendments of 1978** (P.L. 95-524). The CETA legislation directed NOICC to aid states and local areas in adapting occupational data to local terms, to provide technical assistance to computerized systems of career information, and to assist and encourage the development of such systems. NOICC is operating a career information grants program, providing two-year start-up grants matched by local funds to state-based systems. NOICC is also funding a substantial technical assistance program administered through the National Governors' Association.

EIC

Education Information Centers (EIC) are another potential funding source for state-based systems of career information. The **Education Amendments of 1976,** Title IV (P.L. 94-482) authorized the creation of EIC's in every state and Congress has provided EIC funding. EIC's can be active partners in the development of state-based systems of career information.

Other Funding Sources

Other funding sources include the **Education Amendments, 1976** (P.L. 94-482, Vocational Education funds in Section 102 (a)), the **Youth Employment and Demonstration Project Act, 1977** (P.L. 95-93), the **Career Education Incentive Act** (P.L. 95-207, Sections 3, 8 (a) (2), 9 (b) (1) & (15)), **Comprehensive Employment and Training Act (CETA) Amendments of 1978** (P.L. 95-524, discretionary funds and Titles II and IV), and **Elementary and Secondary Education Act** (P.L. 95-561, Title IV).

FULL MEMBERS OF THE ASSOCIATION OF COMPUTER-BASED SYSTEMS FOR CAREER INFORMATION

Alabama Occupational Information System
Colorado Career Information System
Eureka—the California Career Information System
Massachusetts Occupational Information System
Minnesota Occupational Information System
MetroGuide (New York City Board of Education)
Ohio Career Information System
Oregon Career Information System
Washington Occupational Information Service
Wisconsin Career Information System

ACSCI STANDING COMMITTEES

Membership
Public Information
Research and Development
Standards and Accreditation
Technical Assistance and Training

ACSCI DUES (1979)

*Full Membership (operating systems of career information) $1,500
*Associate Membership (planning or developing systems) $500
*Sustaining Membership (interested agencies or firms) $500

This material was produced pursuant to a grant from the Fund for the Improvement of Postsecondary Education, Department of Health, Education and Welfare, and the National Occupational Information Coordinating Committee. However, any support of the activity does not imply endorsement by agencies of any particular career information delivery mode, software system or access technique and should not be interpreted as such.

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State studies installing computerized job guide

Carole A. Carmichael
Careers editor

STUDENTS AND other jobseekers in Illinois within the year may be able to obtain career information and guidance assistance through a computer-based system.

Computer-based career information delivery systems, operated on a statewide basis, have been growing rapidly since they first appeared 10 years ago in Oregon. At present, 25 states have such a system or are considering one.

The systems deliver timely, accurate, and locally relevant career information to the jobseeker and help in deciding on a career.

The Department of Commerce and Community Affairs, in conjunction with the Illinois Occupational Information Coordinating Committee at Northwestern, has funded a study to examine such a system for Illinois.

"WE'VE BEEN LOOKING specifically at computer-based programs because they permit accumulation, classification, storage, and retrieval of large amounts of information and can be used by a vast number of youth and adults," said Marilyn Jacobson, director of the project.

Michael Neill, coordinator of technical assistance for Career Information at the University of Oregon, explained that the system "takes technical labor market information and puts it into a format that can be read by students from 7th grade through graduate school, clients in rehabilitation agencies and employment services agencies, state correctional institutions, and anyone doing career planning."

Neill explained that the information, available in print or by microfiche, is best delivered via the computer because "labor market information is very perishable and the easiest way to keep pieces of information current is to use the computer. Also, it's very motivating to use a computer to get this kind of information."

Prior to the computer-based system, counselors had to wrestle with interpreting highly technical documents filled with charts, graphs, and tables.

"THEY'RE VERY difficult for the average counselor to read, they're not always available, and by the time they get published and made available to the counselor, the information is obsolete," Neill said.

The Oregon system serves 220,000 people a year, or 10 per cent of the population, Neill said.

"Today, in Oregon, we serve the counseling and career planning offices in secondary schools, community colleges, and four year colleges; correctional institutions, rehabilitation agencies, and other social agencies," he said.

Neill explained that the system allows people "to make informed decisions about their careers. They find careers that they otherwise wouldn't even know about and counselors are able to work with a client or student's needs without spending a lot of time searching for information.

It's also had an impact on the career and vocational education curricula in that teachers have accurate information with which to motivate students about vocational choices.

WITH MANY states adopting such systems, a variety of new applications are projected to emerge.

"There's going to be greater emphasis in states sharing information across state boundaries," said Neill.

"One of the difficult things to resolve in a democratic society is how to fill manpower shortage needs without forcing people into slots that they don't want.

"The democratic way to do this is through information, and people will make intelligent choices when they have good information available."

Neill also projects that as these systems grow in popularity, "more files will be created which will tell the individual what it's like to work for a specific employer.

"THERE WILL BE things which will relate financial aid programs to specific education programs, and there will be greater emphasis in relating career planning information to program planning information," he said.

During recent workshops, high school and college counselors, as well as representatives from government agencies and community based organizations, cited the features they'd like to see in such a system, Jacobson said.

"They want the data to be accurate and current and the system to be accessible to a wide variety of users, including the handicapped, out of school youth, elementary and secondary school students, college and university students, adults, and the economically disadvantaged," she said.

"They want localized data, job descriptions that include supply and demand projections and descriptions of benefits, wages, working conditions, the general work environment, and stress factors.

"THEY WOULD ALSO like a capacity within the system to match job characteristics with an individual's values, interests, abilities, and location preferences."

Jacobson explained that the feasibility study will be completed by the end of September. Funds have been allocated, and the system could be operating within the next 6 to 12 months.

Carole Carmichael's careers column also appears in the Sunday Jobs-Autos section.

Any complete system of educational and occupationa. information has several essential components. But there are alternative ways to organize information services and to deliver information to clients.

systematic delivery of career information

bruce mckinlay

Where do you go when you want some simple facts about educational or occupational opportunities? How do you find out which schools teach interior design, how much their tuition costs, and what kinds of financial aid they offer? Where can you find out about the pay for interior decorators and the chances of breaking into the field?

Lacking a systematic source of career information, people faced with these questions may have a difficult time finding answers. They may "ask around", querying friends, parents or colleagues. These people will be supportive, but they probably will not be full of facts. Consulting the library or some school catalogs might turn up some information, but will it be complete, current and locally relevant? Obtaining information will not be easy and, in fact, a person may bypass the information search in order to expedite action. Folklore is not a satisfactory source of information about schooling or work; the range of choices in education is too wide, and the labor market is too dynamic. The sheer number of educational opportunities is too great for anyone to remember. In California alone, 400 post-secondary institutions offering 15,000 degree programs are included in the California Career Information System. Affirmative action and other social programs have major labor impacts in some fields of work and little in others. Market forces change the outlook for certain occupations from surplus to shortage in a matter of months. As Yavitz, Morse, and Dutka (1973) point out, informal sources are relatively immune to updating.

While nobody claims that career decisions are based solely on educational and occupational data, decision theory and career choice theory concur that information is an essential ingredient in informed choice. Two large-scale national surveys of both youth (Prediger, Roth, and Noeth, 1974) and adults (Arbeiter and others, 1978) reveal a widespread need for better information.

When accurate, current, and local career information is not available to aid in making these career choices, the results are well-known: those who are adaptable and have good contacts cope quite well, and others do not. The current level of job dissatisfaction, stereotyping of occupations and schools, and concentrated unemployment indicate that a lot of people are underutilizing their talents.

In criticizing current information, some agencies think that funding occupational and educational surveys is enough to meet the information needs, and that current information only needs better publicity. Others have thought that hiring counselors was enough and have criticized them for not being information specialists.

Certainly our educational and economic data need to be improved and our counseling services strengthened. But even at their best, data producing agencies and counseling offices are unlikely to meet the information need. Why? Because a link is missing: Distribution is being ignored. Information is like any other commodity: raw data must be *processed* and *distributed* before it can be widely used. With career information, as with food or news, it is not sensible to rely solely on either the producer or the consumer to perform the distribution function. A system for career information fills the distribution gap and completes the link between the data producer and the consumer.

The three major components of a career information system are: (1) Information. A career information staff bases its information on data obtained from governmental and private data programs and supplemented from original sources when necessary. In order to be informative to individuals, these must be "processed" into a usable form; they must be synthesized and reported from a career-planner's perspective, in terms and with comparisons most meaningful to that audience. (2) Delivery. The processed and packaged information must be delivered to sites where individuals have easy access to it. Various media are used as delivery vehicles, including computer manual and book formats. (3) Assistance. Finally, schools, counseling centers, and other institutions that provide educational and career services often need technical assistance by information system staff in integrating this information into their local service programs. School and agency staff use it more effectively if they are trained to use processed information in their educational and career development activities.

The Department of Labor's *Career Information Systems: Standards for Organization and Development* (1977) spells out general criteria these systems should meet. *Developing a Career Information System* (McKinlay, 1974) details the specifics of how to set up a system of career information. The purpose of this chapter is to give an overview. Here we shall see how a system works, what information looks like to a user, how people use the delivery system, and what organizational support the system requires.

components of systems for career information

Let us now take a brief look at the workings of a system of career information which puts the information and delivery mechanism into the hands of consumers. The advantage of such a system is that it is *user-operable*. Complicated statistics, electronics, and procedures are converted into systems that non-specialists can use and understand. One does not have to be a statistician or programmer to operate a system of career information (any more than one has to be an engineer or mechanic to operate a car).

Information Analysts. Work has a variety of dimensions; a career information analyst must comprehend and interpret all of them. The analyst integrates data on job tasks and performance requirements with institutional data on employers and schools with economic data on current employment, projections, hiring practices, and wages. The analyst tries to answer the questions: What is the work or the schooling like? Could I qualify? And what are the prospects and rewards? This analysis requires skill with existing employment and educational data as well as familiarity with operations data and informed sources.

With a staff of three or four analysts, a system of career information can maintain accurate data for the two- to three-hundred career areas that make up 95 percent of the jobs in a state; most differentiate between the most important labor markets of the state; and accurately inventory available educational programs.

Delivery Devices. Like the information, the delivery devices for career information must be both economical and easy for the user to handle.

One conventional delivery device for such information is the book, and many systems of career information produce annual or semi-annual printed copies of their occupational and educational information in paperbound or loose-leaf format for library use and as a desk reference for counselors and placement personnel. (These volumes frequently prove useful for administrators and planners as well.)

By building a searching strategy into the system, information files become a systematic way for people to explore careers. Mechanically this addition can be made by means of a deck of sortable cards. Each needle-sort or key-sort card is coded for the attributes of, for example, a particular occupation, and users sort the cards with a knitting-needle like device to find occupations that show a high potential of meeting their preferences. Manual systems are not simply substitutes for the computer. They have the advantage of being highly graphic. (If you say you will not finish high school, the number of occupational cards that drop off is impressive, even to the cynical eleventh grader.) They are also highly portable, thus being handy to use in the counselor's office, at home, or, in sets of four or five decks, in all kinds of classrooms and career-development group activities.

More characteristic of the systems of career information is the use of a computer; some systems are operable only by computer. The computer is a tool used principally by mathematically sophisticated professionals who understand its complexities or clerical staffs who are paid to put up with

them. The individual career planner is neither, and is intolerant of bugs, obscure error messages, slow response, and down-time.

A well-designed user program can put the speed and consistency of this technology to work. Even after acquiring a well-designed computer program, the continuous loading of new information, the distribution of updated tapes to computer centers, and helping user sites arrange for economical and reliable service require the attention of a user-oriented computer services staff, including a computer loader (a clerical job) and a computer services coordinator. It does not require computer programmers, however.

At the user site, terminal type, location, and scheduling make the difference between the service being available to the majority of students and clients or just to the aggressive few.

The cost of computers is often thought to be prohibitive for such widespread use. With central processor time on large computers costing several hundred dollars per hour, people are amazed that computer systems for career information generally cost only three to four dollars per hour. Prices of two to three thousand dollars per year with unlimited computer time are common.

The reason for the difference is the size of the computer—systems of career information operate on small, "mini" computers—and the fact that billing is for total connect time, not just the more expensive processor time. Total cost for career information delivered by computers totals only two dollars to three dollars per person per year, including multiple uses by the same individual. This cost is composed of approximately one dollar for the information itself and the services of the career information staff, plus one dollar or two dollars for equipment rental and computer time, with the average use running about half an hour. Such figures vary with geography and with the intensity of use, but at those rates computer time is cheaper than any staff time the institution could substitute for it.

Technical Assistance. While the same labor market and educational facts are pertinent to all kinds of students and agency clients, not everyone uses them in the same way. A system of career information must therefore possess a high degree of flexibility in the information file structure so it can accommodate to the client needs and service traditions of various institutions.

Local institutions find the most creative applications, but it is essential for someone to introduce the system and encourage innovation. Consequently, systems of career information have service staffs responsible for marketing the system to institutions that can benefit from it for training agency staff in the delivery system's use, for ensuring that technical problems do not interfere with use, and for assisting agency staff with the integration of information into its numerous activities.

Though career information is a recognized part of the guidance process, it is important to note that occupational and educational information is useful in instruction and in student research just as it is in guidance. The longer-established systems find their materials used in many unanticipated ways in instruction. Facilitating this integration is a function of the service staff.

Manual Delivery. A feature that is very important to some systems is the availability of a delivery vehicle that does not employ a computer terminal. Several state career information systems, especially those with large rural areas, serve hundreds of sites with these devices. Usually this version consists of a deck of cards that can be sorted by means of a needle and peripheral holes and notches that are coded to correspond to items on a questionnaire that the user fills out. Sorting these cards produces a list from which the user goes to printed copies of the information files. Other programs throughout the country use microform for the delivery of the information and some states have adapted that medium for manual delivery of all their information files, and have created paper processes for file searching.

This alternative delivery mode is important for several reasons. Manual delivery increases the flexibility of a delivery system by making it readily portable to classrooms, private counseling offices and residences. It makes the system easily adaptable to a variety of educational and guidance activities and is a low-cost way to deliver information in areas where telephone rates make computer delivery uneconomical.

Another form of manual delivery are books and briefs, which contain information but incorporate no file searching capability beyond that provided by any good table of contents. Many such books and files are available both from government and commercial publishers, but their table of contents or filing sequence is the single accessing variable.

Career indexes, books, briefs, and instructional materials often are important to the integration of career information into counseling and instruction. Components of systems of career information become counseling and instructional tools themselves. The use of occupational needle-sorts and printouts in classrooms is commonplace, even at sites that have computer access to career information. The best career education and career counseling services use a number of resources including printed materials and the skills of counselors.

It is important to understand that such systems do not take the place of counseling. They are cheap, reliable, and attractive ways of filing, retrieving, and printing information that mesh into a variety of instructional and counseling programs. They reduce professional time spent in filing, and improve both staff and client access to information that can only come from outside the institution. Such systems free counselors and teachers for more personal work and become tools for both individuals and staff for obtaining needed information.

people and systems

Analyzing data to produce usable information, delivering that information to users, and training educational and social agency staff all have as their end goal the delivery of high-quality information to people making educational and occupational plans. How, then, does a person use a career information system? The example below is an actual case of a student using a computer-based system.

Ordinarily the institution where the person is enrolled in school, receiving counseling services, or working will set aside a room that is used as a "career center." Its arrangement is informal, with various printed materials available for study and quite likely a career center aide (who may be a counselor, paraprofessional, or trained student) available to answer questions.

If users are not familiar with the system, they begin with a "User's Handbook" which describes the occupational, educational and institutional information that is available, and how to obtain and make use of this information. Once they have decided what information to request, they use a typewriter-like computer terminal connected by telephone to a computer somewhere in the area. The interaction is entirely in the hands of the user. Systems for career information are designed for direct client use, capitalizing on people's interest in operating the terminal themselves while freeing counseling staff to guide the decision process rather than retrieve information.

The following printout records the first use of the computer terminal by an entering college student. The annotations highlight the several features of such systems.

```
HELLO
HELLO. PLEASE ENTER YOUR NAME, THEN PUNCH THE
'RETURN' KEY.

?TERRY
HELLO TERRY,
YOU ARE LOGGED IN TO THE CAREER INFORMATION SYSTEM.
HOW DO YOU WANT TO START?
IF YOU FILLED OUT THE QUESTIONNAIRE IN YOUR HANDBOOK,
      TYPE IN: QUEST
IF THERE ARE OCCUPATIONS, EDUCATIONAL PROGRAMS, OR
SCHOOLS YOU WANT INFORMATION ABOUT,
      TYPE IN: INFO

?QUEST
      WE WILL NOW BEGIN. AS EACH QUESTION IS LISTED, LOOK
TO SEE HOW YOU ANSWERED IT IN YOUR USER'S HANDBOOK.
THEN TYPE IN THE CODE YOU CIRCLED. DON'T FORGET TO PUNCH
THE 'RETURN' KEY AFTER EACH RESPONSE.
```

When the questionnaire is completed, the System reports:

```
THERE ARE 14 OCCUPATIONS THAT CORRESPOND TO THE
ANSWERS YOU GAVE
'QUEST' LIST FOR TERRY

CLERICAL OCCUPATIONS (1400)
  SHORTHAND REPORTERS

BOOKKEEPING, ACCOUNTING & COMPUTER OCCS (1600)
  PROGRAMMERS & SYSTEMS ANALYSTS
```

LABORATORY OCCUPATIONS (2600)
OPTICIANS
LABORATORY TESTERS

MECHANICS OCCUPATIONS (3100)
JEWELERS
INSTRUMENT REPAIRERS

TIMBER PRODUCTS OCCUPATIONS (4500):
PULP AND PAPER WORKERS

GRAPHIC ARTS OCCUPATIONS (4700)
PRINTING PRODUCTION OCCUPATIONS

TRANSPORTATION OCCUPATIONS (6100):
YARDING AND LOADING OCCUPATIONS
RAILROAD ENGINEERS
PILOTS AND FLIGHT ENGINEERS

HEALTH SERVICE OCCUPATIONS (8100):
PHYSICIANS ASSISTANTS
PHYSICAL THERAPISTS
DENTAL HYGIENISTS

CHECK FOR THE OCCUPATIONS YOU ARE NOW CONSIDERING.
ARE THEY ON THE LIST? TYPE IN: YES OR NO

Users are encouraged to reflect on their choices and to experiment; they can change answers and get different lists.

Being interested in opticians, the user asks for more specific information about this occupation:

OPTICIANS

OPTICIANS PREPARE CORRECTIVE LENSES AND EYE GLASSES ACCORDING TO PRESCRIPTIONS OF OPTHALMOLOGISTS AND OPTOMETRISTS. DISPENSING OPTICIANS FIT GLASSES AND SELL FRAMES, WHILE OPTICAL TECHNICIANS (OR MANUFACTURING OPTICIANS) PREPARE GLASSES FOR CUSTOMERS BY GRINDING, POLISHING & CUTTING LENSES, AND MOUNTING THEM IN FRAMES. SOME OPTICIANS ALSO MAKE & FIT CONTACT LENSES. SPECIALTIES: DISPENSING OPTICIANS (DOT# 299.474-010 & 713.361-014), OPTICIANS (716.280-014), PRECISION LENS GRINDERS (716.382-018).
—APTITUDES: MECHANICAL ABILITY, ABILITY TO MEET PRECISE STANDARDS, AVERAGE OR ABOVE SPATIAL & FORM PERCEPTION, AVERAGE NUMERICAL APTITUDE, GOOD USE OF HANDS & FINGERS. ABILITY TO MEET THE PUBLIC & SALESMANSHIP ARE IMPORTANT FOR DISPENSING OPTICIANS.
—WORK SETTING: INDOORS; FACILITIES ARE USUALLY MODERN & WELL-EQUIPPED. MANUFACTURING OPTICIANS' WORK DOES NOT REQUIRE HEAVY PHYSICAL LABOR BUT IS DEMANDING IN ATTENTION TO DETAIL & IN TECHNICAL KNOWLEDGE. THEIR WORK AREAS MAY BE NOISY BECAUSE OF THE POWER-GRINDING AND POLISHING MACHINES. PHYSICALLY HANDICAPPED PERSONS WHO HAVE FULL USE OF HANDS & GOOD VISION CAN PERFORM SOME

OF THE MORE SPECIALIZED JOBS IN THE MANUFACTURING LABORATORIES. EMPLOYERS: THE MAJORITY OF DISPENSING OPTICIANS WORK IN RETAIL OPTICAL SHOPS & OPTICAL DEPARTMENTS, OR WITH PHYSICIANS AND OPTOMETRISTS. MOST OPTICAL TECHNICIANS WORK IN WHOLESALE OPTICAL LABORATORIES.
—HIRING PRACTICES: COMPLETION OF A TRAINING PROGRAM IS USUALLY REQUIRED. FOR TRAINEE POSITIONS, GOOD USE OF HANDS & FINGERS AND MECHANICAL ABILITY ARE IMPORTANT. CERTIFICATION: AVAILABLE TO DISPENSING OPTICIANS WHO ARE GRADUATES OF AN APPROVED SCHOOL OF OPTICIANRY OR HAVE 5 YEARS EXPERIENCE AND PASS A WRITTEN EXAM. TRAINING: SKILLS ARE ACQUIRED THROUGH FORMAL APPRENTICESHIP, INFORMALLY AS AN OPTICIAN'S HELPER OR THROUGH EITHER A 1-YEAR OR 2-YEAR PROGRAM AT PORTLAND CC. SEE PREP 2644.
—CURRENT EMPLOYMENT: NEARLY 400 ARE EMPLOYED IN THIS OCCUPATION IN OREGON. IN ADDITION, THERE ARE OTHERS WHO ARE SELF-EMPLOYED. THIS IS A SMALL OCCUPATION WITH MOST OPTICIANS WORKING IN POPULATION CENTERS OFFERING A WIDE VARIETY OF MEDICAL HEALTH SERVICES.
—WAGES: ENTRY RATES FOR JOURNEYMEN ARE ABOUT $900–1,000/MONTH. AVERAGE MAXIMUM EARNINGS ARE ABOUT $1,300–1,500/MO FOR DISPENSING OPTICIANS; ABOUT $1,000 FOR MANUFACTURING OPTICIANS.
—OUTLOOK: SHORTAGE OF JOURNEYMEN IN LARGER POPULATION ENTERS SUCH AS PORTLAND AND EUGENE; BALANCE IN AREAS SUCH AS COOSCURRY COUNTIES & SOUTHERN OREGON. OUTLOOK DEPENDS ON THE NUMBER OF CURRENT HEALTH & EYE CARE PROGRAMS AND THE REPLACEMENT OF THOSE WHO LEAVE THE OCCUPATION. EMPLOYMENT FOR OPTICIANS IS EXPECTED TO GROW FASTER THAN THE AVERAGE FOR ALL OCCUPATIONS IN OREGON. THIS GROWTH IS A RESULT OF AN INCREASE IN DEMAND FOR PRESCRIPTION LENSES CAUSED BY POPULATION GROWTH, RISING LITERACY & EDUCATIONAL LEVELS AND AN EXPANDING NUMBER OF OLDER PERSONS (A GROUP MOST LIKELY TO NEED GLASSES). CURRENTLY, DEMAND IS FAIRLY STRONG FOR FORMALLY TRAINED & EXPERIENCED APPLICANTS SKILLED IN GRINDING, SURFACING, FITTING AND EDGING GLASSES AS PRESCRIBED. PROSPECTS ARE GOOD FOR QUALIFIED WOMEN, MINORITIES & FOR THE HANDICAPPED WITH GOOD EYE-SIGHT & MANUAL DEXTERITY. PENDING FEDERAL REGULATIONS CONCERNING THIS FIELD WILL INCREASE THE DEMAND FOR FORMALLY TRAINED OPTICIANS.

The student then asks the system about requirements to become an optician:

—SKILLS: OPERATION OF OPTICAL EQUIPMENT & USE OF TOOLS; KNOWLEDGE OF OPTICAL MATERIALS; UNDERSTANDING OF THE ANATOMY OF THE EYE AS WELL AS NORMAL & ABNORMAL VISION & PERCEPTION; KNOWLEDGE OF FEDERAL, STATE & LOCAL LAWS GOVERNING THE OPTHALMIC FIELD.

—CERTIFICATION: TO BE CERTIFIED BY THE NATIONAL ACADEMY OF OPTICIANRY, AN OPTICIAN MUST:
1. BE A HIGH SCHOOL GRADUATE;
2. BE A GRADUATE OF AN ACCREDITED SCHOOL OF OPTICIANRY, OR SHOW EVIDENCE OF 5 FULL YEARS EXPERIENCE AS A DISPENSING OPTICIAN, OR SHOW EVIDENCE OF LICENSURE BY EXAM IN A STATE OF THE UNITED STATES;
3. PASS THE EXAM WITH A MINIMUM SCORE OF 70;
4. PAY $25 FEE FOR EACH EXAM.

—PREPARATION: PRESENT STUDIES SHOW EMPLOYERS PREFER ENTRY-LEVEL OPTICIANS TO HAVE A HIGH SCHOOL EDUCATION AND TRAINING THROUGH EMPLOYMENT AS AN OPTICIAN'S HELPER OR THROUGH A 4-YEAR APPRENTICESHIP. MANY EMPLOYERS SELECT THEIR APPRENTICE APPLICANTS FROM PRODUCTION WORKERS. 1-YEAR AND 2-YEAR PROGRAMS IN OPTICAL TECHNOLOGY ARE OFFERED AT PORTLAND CC. TRAINING AS AN OPTICIAN IN COMMUNITY COLLEGE OR APPRENTICESHIP PROGRAMS INCLUDES INSTRUCTION IN OPTICAL MATH, OPTICAL PHYSICS & THE USE OF PRECISION MEASURING INSTRUMENTS. SOME OPTICIANS SPECIALIZE IN CONTACT LENSES. THEY LEARN HOW TO CALCULATE, DESIGN & FABRICATE CONTACT LENSES TO MATCH THE DOCTOR'S PRESCRIPTION, AS WELL AS TO PROPERLY FIT THE EYES OF THE PATIENT. OPTICIANS LEARN TO MODIFY, FIT, AND ADJUST CONTACT LENSES UNDER THE DIRECTION OF A LICENSED DOCTOR.

RELATED EDUCATIONAL PROGRAMS: OPTOMETRY (SEE PROG 369), APPRENTICESHIP PROGRAMS (631).

—TIPS: HIGH SCHOOL COURSES IN PHYSICS & MATH, INCLUDING ALGEBRA, ARE HELPFUL. COURSES IN SALESMANSHIP, ENGLISH, PUBLIC SPEAKING & BUSINESS ARE HELPFUL FOR PEOPLE WANTING TO BECOME DISPENSING OPTICIANS. FIXING CAMERAS AND OTHER HOBBIES THAT INVOLVE MANUAL DEXTERITY AND ATTENTION TO DETAIL COULD BE USED AS EVIDENCE OF MECHANICAL ABILITY.

Next the student obtains information about the educational programs in optometry:

OPTOMETRY

DO YOU WANT TO SEE A DESCRIPTION OF THE PROGRAM? (TYPE IN: YES OR NO)
?YES

OPTOMETRY PROGRAMS ARE INTENDED TO PREPARE FOR THE OPTOMETRY LICENSE AND A CAREER AS A LICENSED OPTOMETRIST (SEE PREP 8115 FOR MORE LICENSING DETAILS.) USUALLY ABOUT TWO YEARS OF COLLEGE BIOLOGY, CHEMISTRY, PHYSICS, MATHEMATICS AND PSYCHOLOGY ARE REQUIRED BEFORE ENTERING THE PROFESSIONAL OPTOMETRY PROGRAM. ONCE ADMITTED TO THE PROFESSIONAL OPTOMETRY PROGRAM, STUDENTS ARE EXPECTED TO COMPLETE A BACHELOR'S DEGREE (USUALLY IN HEALTH SCIENCES).

THE FIRST TWO YEARS OF THE PROFESSIONAL PROGRAM EMPHASIZE PHYSIOLOGY OF THE EYE & PRINCIPLES OF VISUAL SCIENCE. THE FINAL TWO YEARS INCLUDE PRINCIPLES OF OPTOMETRIC SCIENCE AND CLINICAL PRACTICE. GRADUATES OF THE PROFESSIONAL PROGRAM ARE CONFERRED THE DOCTOR OF OPTOMETRY DEGREE AND MAY THEN TAKE THE LICENSING EXAM TO BECOME A PRACTICING OPTOMETRIST (SEE DESC 8115).

ALL 13 PROFESSIONAL OPTOMETRY PROGRAMS IN THE U.S. REQUIRE APPLICANTS TO TAKE THE OPTOMETRY COLLEGE ADMISSIONS TEST (OCAT). THE TESTS ARE GIVEN IN NOV., JAN. & MARCH; NOV. & JAN. TEST DATES ARE RECOMMENDED (GET TEST APPLICATION FORMS FROM A SCHOOL OF OPTOMETRY). OREGON RESIDENTS ARE ELIGIBLE FOR FUNDS FROM THE W.I.C.H.E. PROGRAM TO ATTEND A PROFESSIONAL OPTOMETRY PROGRAM. APPLY BEFORE OCT. 15 THE YEAR BEFORE ADMISSION.

ONE COMMUNITY COLEGE OFFERS 1 & 2-YEAR PROGRAMS IN OPTICAL TECHNOLOGY. THESE PROGRAMS INTEND TO PREPARE TECHNICIANS WHO MAKE EYE GLASSES (OPTICIANS). TRAINING INCLUDES INTERPRETING PRESCRPTIONS, OPERATING MACHINES USED IN MAKING EYEGLASSES & SURFACING & FINISHING LENSES (SEE DESC 2644).

FOR MORE GENERAL INFORMATION ON SCHOOLS OF OPTOMETRY, WRITE FOR THE BOOKLET 'INFORMATION FOR APPLICANTS TO SCHOOLS & COLLEGES OF OPTOMETRY,' FALL 1978, AVAILABLE FROM THE AMERICAN OPTOMETRIC ASSN, 7000 CHIPPEWA ST, ST. LOUIS, MO 63119. THE ASSN ALSO PROVIDES INFO ON PARAPROFESSIONAL CAREERS IN OPTOMETRY.

RELATED PROGRAMS: 387 HEALTH—OTHER TECHNOLOGIES; 363 MEDICINE; 631 APPRENTICESHIP PROGRAMS.

DO YOU WANT A LIST OF SCHOOLS? (TYPE IN: YES OR NO)

If the student types "yes" to this question, the computer will supply specific information about optometry programs in the local colleges and universities, including fees, schedule of classes, campus characteristics, and courses.

Each user traces her or his own path through the information files. Many start with the Description file and follow references in that file to the Preparation file and continue into the Programs of Study and Training and School files. Others start with the School file or one of the others. The system provides a clearly structured and integrated presentation of occupational and educational information while maintaining the flexibility needed to meet the individual needs of its wide array of users.

Throughout this discussion we have characterized information as the product and the computer or needle-sort as the delivery vehicle. In preceding sections we looked at the features of information systems and "walked through" one example. It is undoubtedly evident that a good delivery vehicle

is one that is easy for the user to operate, and systems of career information have made major strides in putting the power of the computer into the hands of students for their own use in planning their own futures. It is equally true that a good delivery vehicle "fits" the product it is to deliver. An information system that discusses any professional occupations, or implies that all graduates of colleges of education will be teachers, presents a distorted picture. Such distortions sometimes occur in the structure and linking of information files or in the preparation of the information.

The qualities of good information should be evident in the information itself, and they should be reinforced by the structure of the delivery system. Here we are talking about such qualities as accuracy, currency, specificity, and extensiveness. The question facing an information system is whether to deal with broad occupational fields or detailed occupations, whether to have continuous updates or to settle for information that is two or three years old, how many aspects of each occupation or school to describe, and just how precise to be. How much information one presents and correlates depends on the audience and its uses of the information, but it also depends on how much can feasibly be developed and maintained. That is to say, there is an economics of information development that reveals trade-offs among various informational qualities. Concentrating on one occupation makes an in-depth study possible. Wider coverage entails increased costs or less detail. An optimum mix of accuracy, currency, specificity, and extensiveness is the goal.

As in most fields, it is easier to say what would make the present situation better than it is to define the optimum directly. Practitioners and researchers concur that career information should be more current, more localized, and more conclusive than has typically been the case. Historically we have operated with information that is updated every two years or sometimes not at all; we have had only national averages to work with; and material has been too glib to be credible or too circumscribed to be useful. Thus, in addition to improving the delivery of information, there are efforts to make it more timely, more locally relevant, and as conclusive as available facts allow. Making information more timely is largely a matter of breaking the workcycle that has historically been dictated by the printing schedule. In producing a book the work schedule is geared to the date the book goes to the printer. When information can flow continuously (as it can with a computer delivery system) updating can also be continuous and the updated information will be accessible. Thus information updating becomes partly a matter of obtaining new facts as soon as they become public, analyzing their implications for career planning, and putting the new information 'in stock' on the computer. It remains partly a matter of regularly digging for facts that do not become public, too; for much that is important about education and work is not routinely published.

Making career information more locally relevant to the young person or the vast majority of adults who operate in local rather than national labor markets requires an organizational change. The state-based career information consortium is an approach adopted by twelve states to apply career information analysis at the state and local levels. Just as with national data, the analysis begins with formal educational and labor market data sources such as the Higher Education General Information Survey and the Occupational Employment Survey. The longer one works with data, the more conversant one becomes with primary data sources, their limits, and the ways to fill the gaps. Formal data programs are essential; but they are less satisfactory at the local than at the national level, largely because of sampling requirements of most national surveys. There are other sources that are more useful at local levels than they are in national analyses.

These other sources are operations data and informal sources. Operations data, rather than being compiled specifically for the purpose of economic or social analysis, are compiled as a by-product of the operation of a placement, training, income maintenance, or licensing program. Operating reports from private vocational schools to the Veterans Affairs staff and state licensing boards are useful in identifying school openings and closings in this volatile educational sector, for example.

Informal sources are usually individuals such as managers of professional registries, placement services, and employee associations. As with any non-empirical source, their observations reflect both market events and their own perceptions; but experience teaches the analyst, like the good reporter, to question and to listen discriminatingly. One useful technique for tapping informal sources is systematically to submit analyses to individuals with a variety of perspectives. Such review panels permit reaction both to statements of fact and to interpretation. The day-to-day experience that is capsulized in these comments has validity in local areas—though not at the national level, because most education and labor markets are local rather than national. Tapping, interpreting, and utilizing these sources obviously requires an organizational structure that supports state and local level analysis.

The third improvement in career information that was noted previously was the need to make the information more conclusive. There are certain traditions in the handling of occupational information that are useful to career planners.

Typically, systems of career information contain information on job duties, hiring requirements, working conditions, and some information on outlook for each of two- to three-hundred fields of work. However, there is less theory about educational choice than about occupational choice; there is therefore more variety in the educational information delivered by these systems, and in the linkages of the occupational and educational information. This is an area where improvement is still needed because—as Wirtz (1975) and others have pointed out—people need assistance in making the transition from school to work. It seems easier either to be too vague (for instance, to point out no relationship between educational programs and employment opportunities) or to be too mechanical (for instance, to set up a tabulation that implies that all education school graduates do indeed become teachers).

An effective delivery system is a boon to career information, but it does not diminish the need for accuracy; in fact, it intensifies it. Im[illegible]mentation

of career information development and delivery are inexorably intertwined features of a single system. Neither can function alone. The use and evaluation of such systems rests on the information, the delivery vehicle, and the compatibility of the two. As we shall see, the quality of both also depends on the organizational and financial support they receive.

who uses career information?

There is truly no typical user, and no standard use. A recent college graduate, discouraged by fruitless weeks in the labor market, applied the information from a system to improve her job search. After reading the occupational description for her field, she discovered additional kinds of employers whom she had not contacted before. She also read that the market had a surplus of applicants generally and put aside the suspicion that her incompetence was the reason for her unsuccessful job search. She approached subsequent personnel officers with a better appreciation of the labor market situation and shortly landed an entry position. In quite a different situation, a mathematics instructor, wanting to show the relevance of the discipline to diverse kinds of work, sorted the occupational card deck for "low" mathematics ability. As two thirds of the cards dropped out onto the table, a number of students became interested in seeing the narrow range of careers for which "low" mathematical skills were adequate.

Part of the reason for this diversity of use is the flexible structure of the delivery system noted above. Another very important reason is the support for such use that is provided by user-centered career information organizations. In twelve states various educational and social service institutions have organized to share the development, delivery, and training for use of career information. These states include: Alabama, California, Colorado, Iowa, Massachusetts, Michigan, Minnesota, Nebraska, Ohio, Oregon, Washington, and Wisconsin. Nearly as many more are seriously planning or beginning to install such systems. Systems with only national data are running in individual school districts in additional states. All told, there are probably about three to four million people per year being served by such systems. While that is a small fraction of the nation's population, experience in Oregon (where a state-based system has been operating since 1971) indicates that at least ten percent of the population are likely users of a system of career information.

There are several ways to judge the effectiveness of systems of career information. In a very real sense, these systems pass a "market test" each year. In the schools and agencies, department heads, chief administrators, and budget committees are affirming their opinions (that such systems are worthwhile) by budgeting annually to pay their share of the operating costs. Students and agency clients are likewise "voting with their feet" by choosing to use the systems to get information on which they base their own personal decisions. Even after a system has been in a school and its feeder institutions for several years and the novelty has worn off, a substantial majority of students of all backgrounds and scholastic levels continue using the system.

Much more is known from the operating experience and the numerous

project evaluations of systems themselves. There is convincing evidence (from evaluations of several systems) that people like them and think they benefit from using them. All of the studies confirm what observation reveals: that people find the systems easy and fun to use, with over 90 percent of the counselors and students saying some systems are easy to use. That rating represents quite an accomplishment, for career information systems are some of the very first "public use" applications of computers where computer programs have been written that make it possible for an untrained person to operate the system and enjoy it.

There is evidence from several studies that junior high and high school students show measurable gains in occupational and educational knowledge from using the system. In these studies, simple knowledge tests ask students some factual questions about the occupation or school they think they might enter. In one of the better controlled studies, the author concluded (at the .01 significance level when compared to traditional counseling and a control group) that the computer was an effective tool for teaching specific occupational information to both males and females in both a small city and a rural town (Jones, 1976).

Perhaps as important from a career development point of view is the evidence that systems do help broaden people's awareness of career and educational options. Repeated studies of the Oregon Career Information System have shown both young people and adults identifying new career areas that they want to explore because they seem personally relevant. Various evaluations provide evidence that young people can name more occupations after using a system. As many as half of the high school, community college students, and adults who use a system discover new career options they want to explore, and, in one test, as many as thirty and forty percent of adult users changed their first choice occupation or educational program after working with a system (McKinlay and Franklin, 1975).

From the evalation that has been done to date it seems that systems are not only effective in their first objective of delivering accurate information but that the information delivered is indeed useful for people making career decisions.

organizing a system

There are two distinctly different patterns for the organization of career information services. One is national; the other, such as the example shown earlier, is state-based. National career information has been sold to local school districts or local CETA prime sponsors by the marketing arms of national textbook publishers, computer vendors, or testing companies. The result has been the delivery of information containing only national averages and the absence of user training programs beyond what sales representatives can reasonably provide.

The state consortium is a means by which agencies in a state can pool their resources and finance these other two essential ingredients: local infor-

mation and local service. In the last five years, the state consortium has become the dominant means of organizing and financing career information services—largely because of the impetus provided to this cooperative approach by the U.S. Department of Labor's Employment and Training Administration. Policy for a state consortium for career information is set by a policy board whose membership is broadly representative of user agencies and major data producers. Local school and college counselors who are regular users of the system serve on the Board as well, and help the system to maintain an independent editorial policy, to keep responsive to local needs, and to set fees.

These consortium boards set fees because, while the formal organization may take the form of a research center at the university, a non-profit corporation, or occasionally a division of a state agency, it is usually supported as well as controlled by the agencies it serves. As much as ninety percent of the operating expenses for information and service as well as delivery are derived from user fees. These fees, calculated either at a monthly rate per computer terminal or based on the estimated number of users per year, are budgeted and paid by the institutions whose students or clients use the system.

A state-local consortium creates new relationships among state agencies and between state and local agencies. The state agencies give up some of the unilateral authority with which those funded principally from centralized sources are accustomed to operating. In return they become participants in the achievement of something for which they perceive a need but are not funded.

Several new federal initiatives in the information and social services fields are influencing the development of career information systems. The most direct influence, of course, is the Labor Department's continuing program for underwriting the start-up costs of state-local consortia to provide career information to schools and agencies in states. Eight states have received roughly one million dollars each to prepare local information, install systems, and train user agency staffs. This implementation grant program will continue through the Division of Career Information Services in the Employment and Training Administration. Also, a national and various state Occupational Information Coordinating Committees are being created with federal funds to improve the quality and use of occupational data, both in educational program planning and in career guidance. Many such committees are active in the establishment of career information systems in their states, and improvements in the quality of basic occupational data will enhance the service of all career information systems. These and other federal initiatives are creating audiences for career information.

summary

In the foregoing discussion, we have briefly surveyed information analysis, delivery devices, and user services—the three staff activities necessary for the successful operation of a system for career information. We also discussed

the organizational and financial components that enable them to function. They are, as the computer people say, "transparent to the user," but they make a difference to the quality and utility of product that is ultimately delivered.

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